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U.S. ARMY MATERIEL COMMAND



HISTORICAL SUMMARY

FISCAL YEAR 1969

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HISTORICAL SUMMARY

Fiscal Year 1969

(RCS-CSHIS-6(R2))

Prepared by

Historical Office
Headquarters, U.S. Army Materiel Command

1 September 1971

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PREFACE

This Annual Historical Summary covers the seventh year of AMC's operations and activities. Fiscal Year 1969 was characterized by tighter controls on manpower and funding and a tremendous growth in the areas of computer technology, programing, and systems analysis. Furthermore, the demand increased greatly for intensive management by project/product managers, commodity managers, and numerous specialists. As of 1 January 1969, there were 66 project/product managers. However, this number was decreased drastically after GEN Ferdinand J. Chesarek became Commanding General of AMC on 10 March 1969. Another step toward improved management was the reorganization of the Directorate of Materiel Requirements. The new directorate assumed responsibility for requirements planning and programing and other logistics support at the beginning of this fiscal year.

AMC acquired ownership and management of selected secondary items in overseas depots, and responsibility for worldwide management of depot maintenance. To further improve overall management, General Chesarek established the positions of Deputy Commanding Generals for Materiel Acquisition and Logistics Support, and reaffirmed the position of Deputy for Laboratories.

This publication will serve as a means of orienting new personnel and as a guide in the preparation of future logistics histories. At least, it will serve as a holding action until a more definitive history of this period can be written. Moreover, it will furnish background information for future logistics planners and will aid in answering questions of a historical nature.

As in previous years, this summary is the result of a cooperative effort. Mr. Raymond J. Snodgrass wrote chapters I and XI and was responsible for the supervision of the preparation of the overall history. CPT Howard K. Butler wrote chapters II, III, and IV; Mr. Andrew A. Putignano prepared chapters V, IX, and X; and CPT John G. Kemmer was responsible for chapters VI, VII, and VIII.

1 September 1971

DALE BIRDSELL
Chief, Historical Office

U.S. ARMY MATERIEL COMMAND
HISTORICAL SUMMARY
FISCAL YEAR 1969

TABLE OF CONTENTS

<u>CHAPTER</u>	<u>PAGE</u>
I ORGANIZATION AND RESOURCES-----	1
Mission and Organization-----	1
Personnel-----	5
Manpower-----	5
Civilian Personnel-----	11
Military Personnel-----	14
Training-----	14
Financial Management-----	17
Overall AMC Budget-----	17
Project WHIP-----	19
Cost Reduction-----	21
Facilities and Services-----	22
NAPALM-----	22
Real Estate Administration-----	23
Disposal and Relocation of Projects-----	24
Military Construction-----	26
Explosive Ordnance Disposal-----	26
II OPERATIONAL READINESS-----	29
Activation and Mission-----	29
Materiel Readiness-----	30
Logistic Readiness Division-----	30
Activities-----	32
Materiel Readiness Reporting by Major Commands---	32
Materiel Readiness Reporting by ARADCOM-----	34
Joint Logistics Review Board-----	36
Expedited Non-Standard Urgent Requirements for Equipment-----	37
AMC Lessons Learned Program-----	39
AMC Command and Control System-----	41
AMC Operations Center-----	43
Customer Assistance Division-----	43
AMC Customer Assistance Offices Overseas-----	44
Quick Reaction Assistance Program-----	45
Centralization of Staff Cognizance of Assistance-----	46
National Cash Register 500 Computer-----	47
AMC Personnel Performing Duties Overseas-----	49
Other Projects and Tasks-----	50
Plans Division-----	51

TABLE OF CONTENTS

<u>CHAPTER</u>	<u>PAGE</u>
II—Continued	
Introduction-----	51
New Classes of Supply-----	51
Contingency Planning Evolution-----	53
AMC Support of the Apollo Space Program-----	55
Inactivation of the 95th Composite Service (CS)	
Company Calibration (Army)-----	56
AMC Partial Mobilization Expansion Plan, FY 1970--	57
Post Hostilities Planning-----	58
III PROJECT MANAGEMENT-----	63
Background-----	63
Guidance and Control-----	66
Program Management Concepts in Fiscal Year 1969-----	67
Decentralization Plan Implementation-----	71
Aircraft Projects-----	73
Cheyenne-----	73
Manned Aerial Surveillance and Target	
Acquisition System-----	76
The MOHAWK Surveillance System-----	76
The Manned Aerial Vehicle for Surveillance-----	77
MOHAWK Modernization and Product Improvement-----	78
Iroquois-----	79
Aircraft Weaponization-----	84
CHAPARRAL-VULCAN Air Defense System-----	87
Main Battle Tank-----	89
Amphibians and Watercraft-----	94
Electronics-----	97
MALLARD-----	97
Night Vision-----	99
SATCOM-----	101
Other Project Managers-----	107
Project Deseret-----	107
FLAT-TOP-----	114
Mobile Electric Power-----	117
Special Mission Operations and Special Warfare---	119
IV RESEARCH AND DEVELOPMENT-----	125
Introduction-----	125
RDTE Management-----	127
Army Program Planning and Management-----	127
Management Systems and Procedures-----	128
Mission Changes-----	128
Materiel Management-----	129
DASSO's-----	129

TABLE OF CONTENTS

<u>CHAPTER</u>	<u>PAGE</u>
IV—Continued	
ENSURE-----	130
Advanced Technological Research-----	140
Exploratory Development-----	142
Air Mobility Support-----	143
AN/URC-68-----	143
Low Frequency Beacon-----	143
2.75 CS Aircraft Rocket-----	143
Quiet Airplane-----	144
Dust Control-----	144
Surface Mobility-----	145
Assault Bridge for M113-----	145
M113 APC Modifications-----	145
Quadruped Transporter-----	146
Beach Discharge Lighter Mark II-----	146
Other Environmental Research-----	147
AMC-OCE Terrestrial Sciences Center-----	147
Meteorological Rocket Research-----	147
Natick Studies-----	148
Electronics-----	150
Electronic Fuzes-----	150
Materials-----	151
Ceramic and Plastic Armor-----	151
Other Material Developments-----	152
U.S.-Foreign Materials Research Cooperation-----	153
Power Sources-----	154
Fuel Cells-----	154
Other Power Sources-----	155
Explosives and Propellants-----	156
Missile Propellants-----	156
Missile Warheads-----	157
AMC Laboratory System and Deputy for Laboratories-----	158
Research and Development Program and Funding-----	162
RDTE Customer Program-----	163
Test and Evaluation-----	164
Mathematical Review Office-----	164
Improved Test Procedures-----	165
Deseret-Dugway Merger-----	166
Managerial Developments-----	167
V PROCUREMENT AND PRODUCTION-----	173
Procurement in Support of SEA-----	173
Procurement Volume and Trends-----	173
Competitive Procurement-----	174
Formal Advertising-----	177
Incentive Contracts-----	178
Cost-Plus-Fixed-Fee Contracts-----	178

TABLE OF CONTENTS

<u>CHAPTER</u>	<u>PAGE</u>
V—Continued	
Defense Contractor Cost Reduction Program-----	180
Army Contractor Evaluation-----	181
Management of Government Property Assigned to Contractors-----	182
Multiyear Procurements-----	183
Cost and Economic Information Office-----	184
Selected Acquisition Reports-----	184
Management Control Systems-----	184
Cost Information Reports-----	185
Cost Research-----	185
Industrial Readiness-----	186
Modernization-----	186
Replacement of Equipment Lent from ASOD Packages-----	187
Management of Defense-Owned Industrial Plant Equipment-----	188
Engineering Assistance on Plant Clearance and Layaway-----	188
Small Business Program-----	193
Certificate of Competency Activity and Status Report-----	193
Advance Planning Procurement Information-----	193
Munitions-----	194
PEMA Program-----	194
Fuzes-----	194
Weldon Spring Chemical Plant-----	196
Gateway Army Ammunition Plant-----	197
Missiles-----	198
Contracts-----	198
Missile Procurement Field-----	199
Electronics-----	201
PEMA Program-----	201
Production Base Support Program-----	202
Letter Contracts-----	202
Production Management-----	203
Mobility and Weapons-----	204
MECOM Procurement Program-----	204
XM809 Series 5-Ton Truck-----	205
M16 Rifle-----	206
Termination of the AH-56 (Cheyenne) Production Contracts-----	210
VI MATERIEL REQUIREMENTS-----	213
Introduction-----	213

TABLE OF CONTENTS

<u>CHAPTER</u>	<u>PAGE</u>
VI—Continued	
Programs and Resources Office-----	214
PEMA Funding-----	214
PEMA Programing-----	216
T-Day Planning-----	217
Transfer of Items-----	218
Central Worldwide Depot Maintenance-----	218
Army Stock Fund Programs-----	220
Construction Materiel Coordinator's Office-----	221
General Highlights-----	221
Aviation Division-----	223
PEMA Program—Aviation-----	223
Logistical Support of the Republic of Vietnam	
Air Force (RVNAF) Program-----	224
Introduction of Excess Navy TH-13M Helicopters	
into Army National Guard-----	225
Return of CH-37B-----	225
Flight Delivery of U-8 Aircraft to Europe-----	226
Aviation Component Intensive Management System---	227
Special Project to Validate USARV Fiscal Year	
1969 OA Requirements for Selected Secondary	
Items-----	228
Electronics Division-----	229
Project LAFFING EAGLE-----	229
Standard Lightweight Avionics Equipment-----	230
Airborne Command Consoles-----	231
Avionics Retrofit-----	232
AN/PRC-25 and AN/VRC-12 Radio Sets for Vietnam---	233
Second Generation AACOMS Multichannel Equipment--	233
Communications-Electronic Equipment for Domestic	
Disturbances-----	234
Other Developments in Electronics-----	235
Missile Division-----	236
Guided Missile PEMA Program-----	236
Guided Missile Overhaul Program-----	237
DRAGON Weapon System (XM47 Surface Attack	
Guided Missile)-----	238
PERSHING Ia Missile System-----	239
PERSHING Project SWAP-----	240
Redeye Program-----	240
SHILLELAGH-----	241
Shillelagh Problems-----	243
Nike Hercules-----	244
Mobility Equipment Division-----	245
PEMA Major Items Programs-----	245
Army Stock Fund-----	245

TABLE OF CONTENTS

<u>CHAPTER</u>	<u>PAGE</u>
VI—Continued	
PEMA Secondary Items-----	246
Mobility Equipment BP 2300 XO/KO Depot	
Maintenance Program-----	246
Mobility Equipment OASIS Items-----	247
Munitions Division-----	248
M513 Proximity Fuze Restriction-----	248
40mm Non-Self Destruct Cartridge-----	248
XM494E3 105mm Anti-Personnel Tank Cartridge-----	249
2.75 Rocket Flechette Warhead (WDU-YA/A)-----	250
M72A1E1 66mm Rocket (LAW) and Training Device-----	250
152mm Conventional Ammunition-----	252
Protective Mask M17/M17A1-----	252
Other Munitions Items-----	253
Vehicle Division-----	254
Tire Retreading Program—SEA-----	254
Trucks-----	255
Armored Personnel Carriers-----	256
XM706/E1 Armored Car-----	258
1790-2A Engines for M60/M60A1 Tanks-----	258
Weapons Division-----	259
Fiscal Year 1969 PEMA Program-----	259
Depot Maintenance Program-----	260
XM163 Anti-Aircraft Artillery Gun (Vulcan)-----	260
M73E1 Machine Gun-----	262
Dieselization Projects-----	262
Heavy Duty High Pressure Cleaning Equipment for	
Vietnam (ENSURE 318)-----	263
ARVN Modernization Weapons-----	264
New Releases and Deployments-----	264
Administrative Matters-----	265
VII DISTRIBUTION AND TRANSPORTATION-----	267
Organizational Changes-----	267
Program Office-----	268
Revisions of Regulations-----	268
Manpower Spaces-----	269
T-Day Planning-----	270
MILSTEP-----	270
Supply in Review-----	271
Stock Management and Control Division-----	271
Elimination of Non-Mission/Marginal Storage	
Sites-----	271
Transfer of Accountability of Ammunition from	
APSA to Appropriate Owning Services-----	272
U.S. Marine Corps Entrance into Closed Loop	
Program-----	273

TABLE OF CONTENTS

<u>CHAPTER</u>	<u>PAGE</u>
VII—Continued	
Transfer of Accountability for Basic Issue	
Items-----	273
National ADP Programs for Army Logistics	
Management-----	274
Red Ball Expanded-----	275
Support of Thailand Projects-----	275
Redistribution of PACOM Long Stocks-----	276
Storage Division-----	276
SEA Shipments-----	276
Retrograde Cargo from SEA-----	277
Preparation of Tires for Shipment to SEA-----	277
Joint Interservice Support Agreement for	
Ammunition-----	278
Depot Storage Modernization-----	278
Transportation Division-----	279
Helicopter External Lift Sling Problems-----	279
Repair Parts Support for Aircraft in Training	
Base-----	279
System for Consolidating Air Shipments-----	280
Containerization Facility-----	280
Routing of Military Cargo-----	281
Demurrage Charges at Ordnance Plants-----	281
Catalog and Supply Data Management-----	282
Approved Item Name Reclassification-----	282
Microfilm-----	283
Implementating of the DOD Item Entry Control	
Program-----	284
Troop Support Division-----	284
New Responsibilities-----	284
Decapitalization of Combat Individual Meals-----	285
Forward Area Refueling Equipment-----	285
Supply of Sandbags to SEA-----	286
Expedited Action for U.S. and ARVN Personnel-----	286
Aircrewman's Protective Helmet, SPH-4-----	287
Variable Type Body Armor-----	287
Rayon Tan (RT) Shade 445 Uniform-----	288
Other Developments-----	288
Worldwide Logistics Management Office-----	290
Project OASIS-----	290
CAVAMP-----	292
Post Hostilities Logistic Operations-----	292
Recent History-----	292
VIII MAINTENANCE-----	295
Support Division-----	295
Army Spectrometric Oil Analysis-----	295
Support for Tests-----	295

TABLE OF CONTENTS

<u>CHAPTER</u>	<u>PAGE</u>
VIII—Continued	
Multiservice Codes-----	296
Proposed Army Equipment Record Procedures-----	296
Embossed Plastic "Credit Card" Plates-----	297
Processing of TAERS Data for National	
Maintenance Points-----	297
Project Maintenance Support Positive-----	298
Equipment Publications Program-----	299
Missiles and Electronics Division-----	300
Introduction of Computerized Electronic Test	
and Analysis Equipment-----	300
Other Projects-----	300
Vehicles and Equipment Division-----	301
Allen UTI Model 770-PDS Programable Diagnostic	
System (formerly model 1280 PD)-----	301
Automatic Checkout System for Combat Vehicle	
Engine and Transmissions-----	301
GMC 44 Passenger Bus-----	302
Recapping Tires for SEA-----	303
Medical Unit, Self-Contained, Transportable	
Project-----	304
IX INTERNATIONAL LOGISTICS-----	305
Evaluation of Performance-----	305
Overall Management and Planning-----	305
Coproduction Projects-----	307
International Development Programs-----	314
Background of the Programs-----	314
Mutual Weapons Development Data Exchange	
Program-----	315
Defense Development Exchange Program-----	315
U.S.-Canadian Defense Development and Production	
Sharing Programs-----	316
Cooperative Research and Development Program-----	318
International Professional Exchange Program-----	319
International Scientific Cooperation Program-----	319
ABCA Standardization-----	320
Strategic Trade and Export Control Program-----	321
Free World Support Program-----	322
Grant Aid Accomplishments-----	322
MAPEX-----	323
MAP Utilization of Major Items in Long Supply-----	323
Closeout of Fiscal Year 1965 and Prior MAP	
and Laos/Thailand MASF Program-----	324
Supply of Weapons for the Republic of Korea-----	325
Scope of Foreign Military Sales Program-----	326
Helicopters - FMS-----	327

TABLE OF CONTENTS

<u>CHAPTER</u>	<u>PAGE</u>
IX—Continued	
Repair of Helicopters - FMS-----	328
Suspension of Shipments to Ecuador and Peru-----	328
Jordan - FMS-----	329
Close-out Program-----	330
FMS Management Review-----	330
Saudi Arabia Modernization-----	331
Billing by the Surgeon General Against the AMC International Logistics Program-----	332
Secondary Items Support-----	333
 X QUALITY ASSURANCE-----	 337
Depot Operations-----	337
Value Engineering-----	339
Product Acquisition-----	341
Zero Defects-----	342
Army Metrology and Calibration System-----	342
Quality Engineering-----	344
 XI CONCLUSION-----	 347
 GLOSSARY-----	 359

TABLES

1. Authorized and Actual Civilian and Military Personnel Strength for Fiscal Year 1969-----	6
2. AMC Cost Reduction Achievements by Major Category-----	22
3. DA Released AMC Direct Army PEMA Program-----	215
4. Reapportionment and Apportionment Requests-----	220

CHAPTER I

(U) ORGANIZATION AND RESOURCES

Mission and Organization

"The AMC of tomorrow will be vastly different from the organization that was formed in 1962 and has grown over the years in functions and services. Our task of meeting the complete materiel demands of the Army will require a level of determination and a flexibility of thought and action without precedent in logistics¹ history."

This quotation seems to reflect the trend of the U.S. Army Materiel Command (AMC) organizational structure. On 1 July 1968, Headquarters, AMC, structure was modified to coincide with expansion of responsibilities and for further streamlining of operations. GEN Frank S. Besson, Jr., who had commanded the AMC since it was activated on 1 August 1962, announced that the changes would be accomplished within existing manpower ceilings.

Discontinuance of three directorates and the establishment of two new directorates reduced the total from 12 to 11. The number of separate offices remained at 12, but the Technical Data Office was redesignated the Logistics Data Management Office

¹
GEN F. J. Chesarek, CG, AMC, in Army Logistician, Sep-Oct 1970, p. 1.

2

because of assignment of additional functions. Effective 1 July 1968 the Directorate of Supply was discontinued and the Directorates of Materiel Requirements and Distribution and Transportation were formed, as well as a new Logistics Data Management Office.³ The Brown Board recommendations called for a new standard organizational structure for the Command's major subordinate commands. The realignment also coincided with assumption by the AMC of responsibility for selected high-dollar secondary items in overseas areas, and with the assumption of maintenance responsibilities worldwide for Army equipment. The AMC also established the Sentinel Logistics Command in April 1968. This raised to nine the number of AMC's major subordinate commands.

LTC Ferdinand J. Chesarek became Commanding General of the AMC on 10 March 1969 succeeding General Besson. General Besson's new assignment was chairman of the Joint Logistics Review Board established under the auspices of the Joint Chiefs of Staff. That board conducted a study of logistics systems in support of military operations in Southeast Asia (SEA).

Resignation of two top scientific administrators of the AMC, Dr. Jay Tol Thomas, Deputy Director for Research and Laboratories, and Dr. Ralph G. H. Siu, Deputy Director of Development and Engineering, was announced by General Besson on 18 September 1968.

²
AMCR 10-2, 1 July 1966, subj: Organization, Mission, and Functions, Headquarters, AMC.

³
Memo, GEN F. S. Besson, Jr., CG, AMC, to all Headquarters, AMC, personnel, 17 June 1968, subj: Reorganization of AMC Headquarters.

In February 1969, the Secretary of the Army approved the appointment of Dr. J. V. Richard Kaufman to succeed Dr. Siu. In the summer of 1969, General Chesarek announced the appointment of Dr. Robert B. Dillaway as the new Deputy for Laboratories, AMC. This position had been vacant since the resignation of Dr. Thomas.

By May 1969, GEN William C. Westmoreland, Army Chief of Staff, had approved a major realignment of Headquarters, AMC, to be phased over a period of several months. Plans for the changes were announced by AMC on 5 May 1969. General Chesarek pointed out that many of the changes stemmed from studies initiated by General Besson. The objective of the restructuring was to improve management and provide better control over assigned missions and functions—especially to reduce the span of control of the Commanding General and to achieve greater utilization of talent throughout Headquarters, AMC. Details and specific implementation were to be worked out in the next fiscal year. The main goal was to reduce the number of total commands, agencies, or individuals reporting directly to the AMC Command Group. Included in the group were nine major subordinate commands, 19 depots, nine central laboratories, 67 project managers, and 54 installations and activities. The reorganization as proposed affected AMC Headquarters only. However, the changes were to require transfer of some Headquarters personnel to locations outside the Washington

metropolitan area, especially project management personnel. Initial reduction in project managers from 67 to 49 was invisioned.

Among important changes approved was the appointment of two new Deputy Commanding Generals—for Materiel Acquisition and for Logistics Support. Materiel Acquisition was to focus on the industrial base, with control of research and engineering, procurement and production, materiel requirements, logistics data management, and related functions. Logistics Support was to be concerned with support of the field Army—control of operational readiness functions, distribution, transportation, maintenance, international logistics, and the AMC depot system.

In Fiscal Year 1969, the AMC had 69 installations and 107 activities located throughout the United States. More than 6 million acres of land, with an acquisition value of \$55.5 million, was under AMC control at the end of this fiscal year. Located on these installations and activities were buildings and other facilities with an acquisition value of more than \$3.5 billion.⁴

During this fiscal year the General Services Administration (GSA), at the request of the Department of Defense (DOD), continued to solicit offers to lease approximately 600,000 square feet of space in Northern Virginia to house the AMC Headquarters and related activities of the Command. The target date for occupancy was the fall of 1971. AMC Headquarters occupied space in five government-owned facilities and four commercial office

⁴ Inventory of Military Real Property (RCS-ENG-75(R3)), 1969.

buildings. Most of the approximately 4,700 personnel of Headquarter and its collocated activities were housed in Tempo 7 Building at Gravelly Point, Virginia. Other Headquarters' personnel were scattered among the Munitions Building and the Navy Yard Annex in the District of Columbia; Fort Belvoir in Fairfax County, Virginia; a warehouse facility in Alexandria, Virginia; plus the four following commercial sites in Virginia--the Nassif Building at Bailey's Crossroads in Falls Church, the Dwyer and Hoffman Buildings in Alexandria; and the Jack Stone Building in Arlington County.

Proposals to locate headquarters' space assumed that a suitable place could be found in Northern Virginia within a 10-mile radius of the Pentagon. It was believed that this would cause minimal inconveniences to personnel who drove or who used public transportation in getting to and from work. Furthermore, nearby adequate lower- and middle-income housing and the availability of public transportation to the urban center were to be factors in the final site selection.

Personnel

Manpower

As in the immediate previous years, the war in Vietnam had a tremendous impact on the AMC during Fiscal Year 1969. The overall logistical effort required a work force of approximately

5

Directorate of Installations and Services Historical Summary, FY 1969, pp. 8-9.

180,000 civilian and military personnel. Manpower restrictions during this fiscal year had a definite effect on the ability of AMC to accomplish its assigned mission while the workload, particularly the support of SEA, was at a high level. A breakdown of the Command's authorized and actual civilian and military personnel strength at the beginning and end of Fiscal Year 1969 is shown in the following table:

Table 1.—Authorized and Actual Civilian and Military Personnel Strength for Fiscal Year 1969.

	As of 1 July 1968	As of 30 June 1969
Civilian		
Authorized	168,456	158,361
Actual	166,100	160,294
Military		
Authorized	15,204	14,820
Actual	14,420	13,489

Total Army civilian personnel strength rose during Fiscal Year 1969 from 566,417 to 578,731. Except for the transfer of approximately 24,000 National Guard civilian technicians into the Army, this strength would have shown a slight decline. For the first time in several years, the Army's total military strength decreased in Fiscal Year 1969, from 1,569,700 to 1,511,300.

6

Figures furnished by 1LT V. Q. Giffuni, AMC Manpower Division, 2 Dec 1969.

The strength in Vietnam rose from 352,900 to 368,300.⁷ A decrease in civilian personnel came primarily as a result of DA limitation. A civilian personnel rollback came because of restrictions placed upon the AMC by DA, including insufficient funds available to support existing rates of expenditures.⁸ The decrease in military personnel was due largely to the inability to fill AMC positions because of higher priority requirements.

The year-end strength figures for Fiscal Year 1969 did not reflect the struggle experienced by AMC in managing manpower ceilings required by the law which became effective on 1 July 1968. The objective of the law was to limit the number of civilian employees in the executive branch of the government. This law provided that no additional appointments could be made to permanent positions until the strength reached the 30 June 1966 level. However, there were certain notable exceptions, such as: One hundred percent replacement was permitted when vacancies were created by transfer or reassignment to other government agencies; seventy-five percent replacement was permitted in permanent vacancies created by separations; temporary positions were restricted to the number on board during the corresponding month of Calendar Year 1967; and intermittent employees, such as consultants, were not restricted.

⁷
Annual Rept of the Secretary of the Army, FY 1969 (final draft) pp. 57 & 83.

⁸
For AMC FY 1969 Manpower Program, see DA ACSFOR ltr, 26 June 1969, subj: Manpower Voucher for 1st Qtr, FY 1970.

For AMC, enactment of this legislation came at a very unfortunate time because it compounded an already serious personnel fluctuation problem. During Fiscal Year 1968, the Command had been required to reduce its civilian workforce by 9,000 employees, despite the fact that there was no corresponding workload reduction. Then, in the last quarter of Fiscal Year 1968, DA returned 5,600 of these civilian spaces to AMC. While the Command was in the process of rehiring against this authority, Public Law 90-364 was passed and AMC, instead of continuing to hire, was faced with a forced reduction.

Initially, it was believed that the best way to implement the Public Law within AMC would be as indicated in the law itself. It soon became apparent, however, that greater management control was necessary in order to assure support for priority missions. Consequently, in August 1968 all subordinate elements of the Command were asked to identify critical vacancies for which hiring authority was essential. Before an evaluation was completed the Bureau of the Budget (BOB) reduced the hiring ratio to 70 percent for full-time permanent losses, instead of 75 percent, to accommodate hiring exemptions granted to air traffic controllers, post office employees, and other high-priority jobs in the executive branch.

The evaluation of priority missions resulted in the recognition of 1,700 AMC critical vacancies. In order to provide ability

for commanders to perform their workload, full hiring authority was granted for specifically 1,700 vacancies and permission was granted to honor commitments made prior to the enactment of Public Law 90-364. At the same time a hiring limitation was applied throughout AMC which restricted replacement of all full-time permanent losses to a one-for-three basis.

The Command continued to evaluate its strength status and, in October 1968, it was determined that existing hiring restrictions had produced the desired results. Therefore, hiring restrictions were relaxed throughout the AMC to the extent permitted by the public law except for depots which were restricted to a one-for-two replacement factor. At that point, the situation was somewhat under control.

In November 1968, however, the DA issued a revised manpower authorization which required a reduction of 4.5 percent in full-time positions instead of the previously estimated 2.4 percent. The size and scope of this greater reduction required a complete review of the steps then underway to reduce the strength, and a determination of what further action was necessary. The Commanding General, AMC, decided that the missions associated with overall engineering, development, supply management, procurement, and systems management must be provided top priority for available resources. Since these missions were found in the major subordinate commands, project manager offices, laboratories, procurement

activities, and other management agencies, the impact of the additional reductions had to be absorbed by the depots, where the major increases in support of SEA had been provided and where there was a greater capability for use of temporary employment.

The situation was further aggravated in March 1969 when the Assistant Chief of Staff for Force Development (ACSFOR) announced that DA had been directed to immediately accelerate the rate of reductions in full-time permanent employment and to reduce employment in temporary and part-time positions during the period from 1 March to 31 May 1969.⁹ The interim program was designed to achieve a 31 May strength position for DOD that showed a reduction in employment greater than that required by Public Law 90-364.

On 20 March 1969, a 100 percent freeze was placed on all temporary part-time positions in the Command. On 1 April 1969, the AMC placed new numerical full-time permanent employment objectives for 31 May 1969 on all depots. The net result amounted to 100 percent freeze for most AMC installations since their strengths were far over their new ceilings. By 31 May 1969 the desired results had been attained and on 1 June DA relaxed the hiring restrictions for AMC.¹⁰

⁹
UNCLAS DA msg 901112, 14 Mar 1969, subj: Limitations on the Number of Civilian Employees—Direct Hire Military Functions.

¹⁰
UNCLAS DA msg 911012, 2 June 1969, subj: Limitations on the Number of Civilian Employees—Direct Hire, Military Functions.

On 10 June 1969, General Chesarek received DA approval to increase the temporary and part-time ceiling of 2,045 spaces providing for an AMC total of 6,000 such positions.¹¹ The majority of the 2,045 spaces were issued to depots to clean up the retrograde backlog and prepare for T-Day in accordance with the Commanding General, AMC, commitments to the Army Chief of Staff and the Secretary of the Army.

The significance of the implementation of Public Law 90-364 on AMC was that the total pre-Public Law manpower authorization of 165,662 could be used entirely for filling full-time permanent positions. The Fiscal Year 1969 authorization however was divided into two separate ceilings—154,243 full-time permanent and 8,000 temporary and part-time spaces and provided a total capability of 162,243 spaces.¹² In Fiscal Year 1969, AMC experienced a total reduction of 989 military and 16,216 civilian spaces. However, this was partially countered by the transfer of a new workload accompanied by personnel spaces. The net result of all adjustments showed a loss of 703 military and 7,346 civilian spaces for this fiscal year.¹³

Civilian Personnel

DA employment limitations and hiring restrictions, under the Expenditure and Revenue Control Act of 1968, continued

¹¹
UNCLAS DA msg 912293, 12 June 1969, subj: Temporary and Part-Time Employment (T/PT) in USAMC.

¹²
DA ltr, ACSFOR, subj: Manpower Voucher for 1st Qtr, FY 1970, 26 June 1969.

¹³
P&T Historical Summary, FY 1969, pp. 45-50.

throughout most of the fiscal year. Recruitment of career interns was expected to return to normal in Fiscal Year 1970. The number of employees represented by unions continued to increase. At the end of the fiscal year, approximately 48 percent of all AMC employees were represented by unions in exclusively recognized bargaining units. Another achievement was the AMC Talent Bank. The command improved operations by the acquisition of reader-printers which permitted the continuous use of microfilm for screening and referrals. This reduced the amount of machine time previously required.

During this year, the command completed an annual review of the equal employment opportunity program and verified findings through on-site, detailed review of personnel records. Particular emphasis was placed on such aspects of the program as minority group and female employee representation in promotion actions, training, recruitment, awards, and recognition.

AMC took an active interest in career programs and in setting up career rosters in several fields. Improvements in updating the AMC Talent Bank continued. In addition, the command studied the use of scanning devices to expedite more efficient and timely input of data into the talent bank.

During the fiscal year a total of 435 college undergraduates participated in the Cooperative Education Program, compared to 345 in the previous fiscal year. The objective for participation

in Fiscal Year 1970 was from 480 to 545 undergraduates. The AMC retention rate for graduates of the program continued to exceed that for the Army and industry.

By the end of the 3d quarter of this fiscal year, only 53 percent of the projected 2,700 interns for the Centralized Intern Program had been recruited. This goal was not met because of hiring restrictions. Several new concepts were developed for this program. In another program, the Bachelor of Liberal Studies Program (University of Oklahoma), 553 AMC employees were enrolled at the end of June 1969.

During this fiscal year, Logistics Management Offices were established in Europe, Hawaii, Okinawa, Japan, and Korea. The required actions, such as personnel services agreements, processing of career field lists, funding, and travel arrangements were completed expeditiously and the required 39 positions were filled promptly.

Other important personnel activities during this fiscal year were as follows: An AMC task force developed a civilian staffing plan for the Automated Logistics Management Systems Agency (ALMSA); with the activation of SENLOG, the AMC worked out a total personnel and training program for that command including 81 authorized civilian positions; in response to a Civil Service Commission report on "Problems in the Management of DOD In-House Laboratories," AMC worked out a plan for dealing with marginal employees in its

laboratories; and the establishment of the Technical Services Office to aid in strengthening compliance with legal, regulatory, and procedural requirements by the functional branches.

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Military Personnel

Support of the U.S. Army in SEA continued to be of primary importance. Most apparent was the shortage of field grade officers. This shortage was apparent in the reassignment of key officers and enlisted personnel on short notice. At the end of the fiscal year, the command was in the process of reviewing all of its military positions for updating and submission of additional requirements. The number of graduate level positions validated for the 1963-68 period totaled 13 with doctorate degrees and 600 with masters degrees.

The authorized enlisted personnel strength on 1 June 1969 was 10,742 while the actual strength was only 9,424. The command utilized highly qualified enlisted men with law degrees to assist contracting officers in pre-award procurement activity. Courses at Atlanta Army Depot were designed for training in the practical application of wholesale logistics skills. Over 2,000 graduates of the courses had departed for Vietnam.

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Training

Each year the Army Logistics Management Center (ALMC) had

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P&T Historical Summary, FY 1969, pp. 22-36.

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Ibid., pp. 37-43.

been able to accommodate less than half of the students who wished to enroll there and the U.S. Army Management Engineering Training Agency (AMETA) had been able to accommodate only approximately one-third of their potential enrollees. The ALMC situation was expected to be alleviated considerably in Fiscal Year 1970 when a new academic building was scheduled for occupancy. Temporary classrooms at AMETA were expected to permit an increase of that school's capacity¹⁶ in Fiscal Year 1971.

In October 1968, DA disapproved the AMC concept of upgrading ALMC to a logistics college as initially recommended by the Haines Board.¹⁷ The plan called for consolidation of the three major AMC schools at one site, Fort Lee, Virginia. Despite disapproval of this plan, efforts continued toward upgrading ALMC as an educational institution. At the request of the Deputy Commanding General, AMC, the AMC Advisory Board to ALMC was established on 6 August 1968. The board's objective was to periodically review all aspects of ALMC's education and training methodology, techniques, and course materials to assure that the curriculum was responsive to Army requirements. Of special significance during Fiscal Year 1969 was a renewed effort to highlight the consulting and research capabilities of all AMC schools.

¹⁶

Ibid., p. 71.

¹⁷

Report of the Department of the Army to Review Army Officer Schools, Feb 1966 (Haines Board). See ltr, AMCPT-TL, 2 Dec 1968.

On 30 September 1968, the Commanding General, AMC, designated ALMC as the executive agent for training under the National Automatic Data Processing Program for AMC Logistics Management (NAPALM). ALMC was to maintain close coordination with and receive advisory direction from ALMSA. The NAPALM training plan encompassed two dimensions, functional area training and related training in the automatic data processing (ADP) areas to insure the success of any large-scale automated system.

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In August 1968, publication of The Army Logistician received DA approval. This periodical provided logistics information to both military and civilian personnel engaged in logistics operations and management at all levels. It reported on logistic experiences and lessons learned and was expected to foster cohesiveness among logistics personnel. The first edition of The Army Logistician was scheduled for distribution in the fall of 1969.

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Early in Fiscal Year 1969, a DOD/DA Committee studied the scope and effectiveness of AMETA's technical training capability in support of expanding requirements. In a September 1968 meeting the committee's theme was "to build up AMETA's role in its DOD-assigned areas of training in response to growing needs and in recognition of AMETA's inability to meet those needs." The thrust

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P&T Historical Summary, FY 1969, pp. 71-78.

19

DA Circular 310-72, 12 Nov 1968, subj: Pinpoint Distribution of The Army Logistician.

of the committee's efforts continued throughout the fiscal year. ²⁰

Among other significant training activities was a packaging course offered in February 1969 by the Joint Military Packaging Training Center (JMPTC). This course was specifically tailored for senior officers and civilians responsible for packaging administration within the major Army commands. In another area, new equipment training, a command-wide course was conducted at Fort Knox in April 1969. This course is to be repeated in Fiscal ²¹ Year 1970.

Financial Management

Overall AMC Budget

AMC was responsible for a materiel inventory of approximately \$21 billion, of which 50 percent was in depots and 50 percent was in the hands of troops. For each fiscal year from 1966 through 1969, AMC's budget averaged approximately \$15 billion, or a total of \$60 billion for the 4-year period. The command's major budget programs for Fiscal Year 1969 were Procurement of Equipment and Missiles, Army (PEMA), \$15,221.6 million; Army Stock Fund (ASF), \$1,974.8 million; Operations and Maintenance, Army (OMA), \$1,877.5 million; and Research, Development, Test, and Evaluation (RDTE), ²² \$1,262.3 million.

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(1) MFR, 18 Sep 1968, AMCPT-T, subj: First Meeting of DOD-DA Committee for Support of AMETA. (2) Memo, 19 Dec 1968, AMCPT-T, to CofS, AMC, subj: DA-DOD Team Visit to AMETA.

21

Ltr, 6 Sep 1968, AMCPT-TN, to President, U.S. Army Maintenance Board, subj: Combat Vehicle Development Engineering Course.

22

Profile of AMC Programs and Funds, FY 1969, CDP, 30 June 1969.

As of 30 June 1969, obligation of funds, in the above four categories, for 1969, totaled \$11,875 million, while expenditures²³ amounted to \$12,562.6 million of the total Fiscal Year 1969 funding program, that totaled \$1,291.2 million for Headquarters, AMC. The U.S. Army Munitions Command (MUCOM) had a funding program of \$5,109 million, the largest of the major subordinate command programs. The U.S. Army Aviation Systems Command (AVSCOM), with a program of \$2,003.5 million, had the second largest program, and the U.S. Army Electronics Command (ECOM) was third with \$1,821.7 million. The programs for the other six major subordinate commands were as follows: the U.S. Army Tank-Automotive Command (TACOM), \$1,304.2 million; the U.S. Army Missile Command (MICOM), \$1,163.3 million; the U.S. Army Weapons Command (WECOM), \$980.1 million; the U.S. Army Mobility Equipment Command (MECOM), \$641.8 million; the U.S. Army Test and Evaluation Command (TECOM), \$259.4 million; and the²⁴ U.S. Army Safeguard Logistics Command (SAFLOG), \$3.1 million.

During Fiscal Year 1969, AMC operated the following activities under the Army Industrial Fund (AIF): 10 arsenals, 15 depot maintenance activities, two proving grounds, two laboratories, and the Army Pictorial Center (APC). This included Springfield Armory which was officially deactivated on 30 April 1968; however, closing out of financial operations continued until 30 June 1969 when the financial records were formally closed. AMC personnel

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Source: AMC Comptroller.

²⁴

Profile of AMC Programs and Funds, CDP, 30 June 1969.

expended a large amount of time and effort in implementing the Office of the Secretary of Defense (OSD) decision, starting 1 July 1969, which eliminated the financing of mission costs of tenants and satellites through the AIF. As an indirect result, the Aberdeen Research and Development Center was established as a separate AIF entity. The total cost of goods and services produced by AIF installations under AMC was budgeted at \$1,237 million for Fiscal Year 1969 and was expected to be approximately \$1,226 million for Fiscal Year 1970. On 1 July 1968, 11 depot maintenance activities were placed under the AIF and this fund was extended to three other depots already partially AIF-financed. The total number of installations and activities operating under the AIF system increased to 30. This extension increased the AIF Depot Maintenance Program from \$35 million in Fiscal Year 1968 to \$416 million in Fiscal Year 1969. Thirteen percent of AMC's total manpower was financed through the AIF Depot Maintenance Program.²⁵

Project WHIP

One of the most critical management problems facing the AMC at the end of the fiscal year was the allocation of personnel and funding resources. Late in the year, the Command's Chief of Staff approved a project whereby the Comptroller was to provide plans of action under varied assumed levels of operation and reduced resources. The project, designated WHIP (What-If-Program),

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CDP Annual Historical Summary, FY 1969, pp. 53-55.

related to funds and facilities, as well as to civilian and military personnel levels. An initial concept of only OMA funds was expanded to include RDTE, PEMA, ASF, and AIF.

Three alternatives provided the basis for varying resource levels. Alternative A assumed that there would be no change in mission in Fiscal Year 1970. Alternative B assumed that there would be a 15 percent reduction in resources for Fiscal Year 1970 with no significant change in mission. Alternative C assumed that AMC resources would be reduced to a level to support the post-Vietnam Army as expressed in Army Force Development Plan (AFDP) 70-89, Force A, Fiscal Year 1972.

Major subordinate commands and depots responded with information developed around alternatives B and C. Alternative A was developed within Headquarters, AMC. The program document was designed to provide a basis for command decisions if conditions reflected in alternatives A, B, or C occurred.

As a result of Alternative C of Project WHIP, and a requirement to provide AMC input for a DA-Long Range Stationing Plan, the Commanding General, AMC, directed a special study on the consolidation of AMC activities and functions, as well as other innovations and improvements. The plan called for the development of a number of study groups coordinated by the AMC Comptroller. By the close of Fiscal Year 1969, a steering committee to provide policy guidance and technical direction had been established. The

overall objective of this study was to develop plans which would result in increased efficiency within the command. A full-time AMC representative was assigned to the DA Study Group for liaison,²⁶ coordination, and integration.

Cost Reduction

In October 1968, President Johnson presented special citations to selected U.S. Army Ammunition Procurement and Supply Agency (APSA) and U.S. Army Aeronautical Depot Maintenance Center (ARADMAC) personnel in recognition of their outstanding contributions to the cost reduction program. In ceremonies at Aberdeen Proving Ground in December, AMC presented 123 awards to AMC personnel and made awards to selected contractors and their employees. In March 1969, the Deputy Secretary of Defense directed that the Management Improvement Program and the Logistics Performance Measurement Program be identified as the Logistics Performance Measurement and Evaluation System. A regulation on the new system was expected to be published early in Fiscal Year 1970.

Fiscal Year 1969 was the 7th consecutive year in which the AMC had achieved its cost reduction goal. The following table shows the Fiscal Year 1969 cost reduction achievements by major²⁷ category:

²⁶

Ibid., pp. 69-70.

²⁷

Ibid., pp. 96-97.

Table 2.—AMC Cost Reduction Achievements by Major Category.

Category	(\$ millions)		Percent
	Goal	Achievement	
Buying only what was needed	\$132.7	\$143.1	108
Buying at the lowest sound price	41.0	36.2	88
Reducing operating costs	24.9	41.1	165
Total	\$198.6	\$220.4	111

Facilities and Services

NAPALM

The design and development of standard data processing systems continued within the installation management area of NAPALM. During this fiscal year, MICOM began final system development on the NAPALM post supply and materiel management system. Live input from MICOM property records was tested, with excellent results, on the IBM 360 computer at ALMSA. Detailed design and programming of Phase III of the materiel management system was scheduled for completion in Fiscal Year 1970. Little progress was made on the final development of the NAPALM post supply system because of a shortage of ADP personnel and available resources.

28

Installations and Services Directorate Historical Summary, FY 1969, pp. 5-6.

Real Estate Administration

The Fiscal Year 1969 report of AMC real estate activities reflected continued SEA support. Selected actions, which were considered to be the year's highlights, indicate the extent of activity in this area.

The Installations and Services Directorate (AMCIS) located at Headquarters, AMC, was supported by the following operational arms in the field: the Installations and Services Agency at Rock Island Arsenal, Illinois; the Facilities and Services Center at Letterkenny Army Depot; the Army Pictorial Center, Long Island City, New York; the AMC Mobile Television Detachment at Tobyhanna Army Depot; and the AMC Communications Detachment at Headquarters, AMC.

On 2 August 1968, the House Armed Services Committee approved a project for construction of a new ECOM headquarters building. As a result of this approval GSA received bids for the lease of 528,500 square feet of space. This facility was to be constructed off-post and was to serve as the consolidated command headquarters. The deadline for occupancy of the new space was the spring of 1971.

On 29 June 1969, a Title 10 acquisition report was submitted to the House Armed Services Committee requesting additional administrative space at Headquarters, TACOM. The report requested authority to lease 110,000 square feet of space in the vicinity

of Warren, Michigan. This space was required to alleviate overcrowded conditions at Detroit Arsenal and the Michigan Army Missile Plant.

In another action, DA disapproved the proposed transfer of the Hays Army Ammunition Plant, Pittsburgh, Pennsylvania, a Navy plant, to Army control. AMC was currently utilizing, by Navy license, the major portion of this installation, for shell production.²⁹

Disposal and Relocation of Projects

The Department of Transportation approved a request by the City of Denver for 622 acres of land at Rocky Mountain Arsenal to expand Stapleton International Airport. Following the formal transfer request by the Federal Aviation Agency, the AMC prepared a deed of conveyance for the signature of the Secretary of the Army and forwarded the deed to the Department of Justice for legal review.³⁰

In February 1969, MICOM submitted an excess report for the Michigan Missile Plant. This report was forwarded through Headquarters, AMC, and the Deputy Chief of Staff for Logistics (DCSLOG) to the Office, Chief of Engineers (OCE). However, in May 1969, this excess report was withdrawn and the Chief of Engineers

²⁹

Ibid., pp. 8-10.

³⁰

Ltr, FAA to ASA (I&L), 17 June 1969, ns. See app V, I&S Historical Summary, FY 1969.

prepared a Title 10 report seeking Congressional authority to lease the vacant portions of the Missile Plant's property.

A survey of land use at Natick Laboratories (Sudbury Annex) revealed gross under utilization. Consequently, in October 1968, AMC submitted a report to DCSLOG of an excess of 500 acres. This report was approved by DA and forwarded to OCE. During this fiscal year AMC initiated action to have approximately 200 additional acres of the Sudbury Annex declared excess.

During Fiscal Year 1969, AMC initiated action for the disposition or relocation of several other facilities. For example, DCSLOG approved and forwarded to the Chief of Engineers a report on the disposal of Niagara Falls Army Chemical Plant. The report was to be reviewed by Congress. In another action, the entire inactive Phosphate Development Works, Muscle Shoals, Alabama, was offered for outleasing to private enterprise. At the end of the fiscal year, the proposal was at the Chief Engineer's office for continuing action.

A planned relocation of Harry Diamond Laboratories from the National Bureau of Standards area in Washington, D.C., to the Naval Ordnance Laboratory area, White Oak, Maryland, necessitated the transfer of 137 acres of land from the Navy to the Army. Congress granted authority for this transfer on 28 February 1969.³¹

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I&S Historical Summary, FY 1969, pp. 10-12.

Military Construction

At the beginning of Fiscal Year 1969, the AMC portion of the Army's Military Construction Program, which consisted of 49 projects at an estimated cost of \$28,153,000, had been sent to Congress for authorization and funding. At that time, the AMC Fiscal Year 1970 Military Construction, Army (MCA) Program, which consisted of 155 projects estimated to cost \$156,557,000, was undergoing review by DA. The AMC Automatic Data Processing System (ADPS) was still in the formative stage.

During this fiscal year, the command made excellent progress on installation master plans, continued efforts to increase MCA authorizations and appropriations, established construction requirements for site facilities for 79 data processing installations, and emphasized water resources management. Achievements in installation master plans were progressive and noteworthy. Ninety-five percent of the AMC installations had DA-approved master plans, the remaining 5 percent needed minor technical revisions.

Explosive Ordnance Disposal

As a result of actions initiated by AMC during this year, DA assumed staff responsibility for Explosive Ordnance Disposal (EOD) at department level. Previously AMC had responsibility for DA. The Army was charged with 75 to 85 percent of the entire

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Ibid., pp. 13-16.

³³

AR 75-15, 17 Feb 1963.

DOD effort for the EOD mission. AMC was to continue leadership in the North Atlantic Treaty Organization (NATO) EOD Conference that dealt with technical matters.

A review of the procedures for shipment of chemical and biological materials indicated a need for improvement in the security of these shipments. On 27 February 1969, the U.S. Army Technical Escort Center, Edgewood Arsenal, instituted a program to arm the technical escort teams. In accordance with DA regulations on the movement of cargo by air, surface, and parcel post shipments,³⁴ in April 1969 Headquarters, AMC, directed MUCOM to establish procedures for augmenting escort teams with other armed military guards.

³⁴ AMC msg 53313, 4 Apr 1969, from CG, AMC, to CG, MUCOM, subj: Security of Shipments Requiring Technical Escort.

CHAPTER II

(S) OPERATIONAL READINESS

(U) Activation and Mission

Early in 1965, the U.S. Army Materiel Command (AMC) faced the need for the establishment of an office that could deal with the logistical problems of AMC customers and coordinate all AMC actions in regard to materiel readiness. In response to this requirement, the Commanding General, AMC, decided to meet this need by establishing the Operational Readiness Office (OPRED) in May 1965. To emphasize the importance of this action, the Commanding General designated OPRED as an element of the AMC Command Group.

The primary mission of OPRED was to assure effective command response to the Army's global materiel requirements. OPRED was responsible for coordinating AMC's materiel readiness program. This responsibility entailed the direction of an integrated AMC response from both a functional and a commodity basis. OPRED also served as an intermediary for AMC customers in their traffic with the continental United States (CONUS) supply systems by means of liaison activities and by the referral of grave problems to the AMC Headquarters. In addition, OPRED had to devise plans, in accordance with other AMC programs and Department of the Army (DA)

War Plans, for contingency war, mobilization, and emergency
1
operations.

(U) Materiel Readiness

Logistic Readiness Division

Materiel readiness, which had always been a major problem in AMC, helped to stimulate the merger of the U.S. Army Materiel Command/U.S. Army Supply and Maintenance Command (SMC) Headquarters in March 1965. In addition, the Command felt a need for a center within the AMC Command Group for comprehensive supervision of the materiel readiness program and for the assurance of a harmonious AMC response. To achieve this, AMC established the Readiness Office in OPRED.

AMC reorganized OPRED, effective 1 July 1968. The Theaters Division and the Readiness Office became the Customer Assistance Division and the Logistics Readiness Division, respectively. The Plans Division continued as the third division. OPRED acquired one officer from the Army National Guard of the United States (ARNGUS) and the U.S. Army (USAR) to deal with its Reserve
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Component Programs. Under the new alignment, OPRED had an authorized personnel strength of 96 spaces, 26 military and 70

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(1) AMCR 10-2, 29 Nov 1968, subj: Organization, Mission, and Functions of Headquarters, AMC. (2) For a historical background on the foundation of OPRED, see AMC Historical Summary, FY 1966, pp. 67-69.

2
AR 135-18, 12 Feb 1969, subj: Assignment of ARNGUS and USAR Officers to Headquarters and Agencies Responsible for Reserve Affairs.

civilian. On 1 December 1968, COL Frank J. Petrilli succeeded³
COL Victor E. Matteson as the Chief of OPRED.

The Logistic Readiness Division, which succeeded the Readiness Division, underwent reductions in both size and strength. This division had two branches, not three, as the older Office had. The Division suffered a loss of 10 personnel spaces, 5 military and 5 civilian. The authorized personnel strength was 17 spaces,⁴ 5 military and 12 civilian.

The Logistics Readiness Division had many duties to fulfill. The Operations Center Branch operated the AMC Operations Center (AMCOC) and maintained followup information on important logistical actions. AMCOC operated on a 3-shift, 24-hour a day basis and was augmented during emergencies or upon the specification of the Commanding General, AMC.⁵ The Readiness Evaluation Branch assumed the role of the former Operations Branch as the staff supervisor of the AMC Logistic Readiness Program in support of the DA Logistic Readiness Program.⁶ This branch was also⁷ responsible for the AMC Lessons Learned Program, the Expediting

³ OPRED Historical Summary, FY 1969, p. 1.

⁴ (1) AMCR 10-2, 29 Nov 1968, subj: Organization, Mission, and Functions of Headquarters, AMC. (2) For further details on the creation of the Readiness Office, see AMC Historical Summary, FY 1966, pp. 67-72.

⁵ AMCM 120-2, 13 June 1968, subj: Mobilization-AMC Augmented Operations Center Operations.

⁶ AR 11-14, 7 June 1968, subj: Army Programs, Logistic Readiness.

⁷ AMCR 1-27, 19 Jan 1967, subj: Operational Reports-Lessons Learned.

8

Non-Standard Urgent Requirements for Equipment (ENSURE) Program,
and the Command and Control Program in support of the DA Command
9
and Control Program.

(U) Activities

In accordance with the Fiscal Year 1968 reorganization, AMC discontinued several activities of the old Readiness Division at its demise on 1 July 1968 and several new activities were instituted for the Logistic Readiness Division. The most significant areas are covered in the following pages.

Materiel Readiness Reporting
by Major Commands

The Army's readiness reporting system required from commanders of major subordinate commands quarterly readiness summary evaluations. The commanders, under DA guidance, prepared and sent copies of these reports to DA, AMC Headquarters, and AMC commodity commands. DA required AMC to analyze the logistical problems noted in the reports.

AMC relied upon its commodity commands for this analysis. The commodity commands had to review the commanders' statements for the identification and rectification of cited logistics

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AMCR 525-2, 7 Feb 1968, subj: Expediting Non-Standard Urgent Requirements for Equipment (ENSURE).

9
(1) AR 525-1, 2 Dec 1966, subj: MILITARY OPERATIONS-The Department of the Army Command and Control System (DACCS). (2) AMCR 11-22, 13 Jan 1966, subj: Army Programs, Materiel Readiness.

problems, coordinate with the reporting commands for the elucidation and solution of mentioned inadequacies, speed the shipment of open requisitions, and furnish pertinent commands with shipping information and updated supply status. Having completed these actions, the commodity commanders had to submit to AMC Headquarters a detailed analysis of recognizable problems and a list of actions, planned or taken, to solve them. To insure the fulfillment of these tasks by the commodity commanders the Commanding General, AMC, required the commodity commander, or his designated representative, to sign the analysis. OPRED thus received 36 commanders' statements in Fiscal Year 1969. AMC identified and responded to all of the logistical problems noted in the analyses¹⁰ and notified DA of their actions.

In reviewing the analyses to insure that action would be taken to solve the problems, OPRED noted that equipment shortages were both continuous and troublesome. Subsequent inspections of reports, however, revealed that, on a long-range basis, the equipment in available stocks was increasing. With this data, OPRED furnished availability dates on end item shortages to the commanders of major subordinate commands. Most of these shortage items, though, were on a list of items under the control of DA Distribution/Allocations Committee (DADAC), which gave Southeast Asia (SEA) first priority.

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AR 220-1, 28 Apr 1969, subj: Unit Readiness.

Because of the unsolved problems, OPRED furnished to the Commanding General, AMC, a summary analysis of the major commanders statements for the 2d Quarter, Fiscal Year 1969. This analysis outlined the logistic readiness condition of the 9 major Army reporting commands, and placed a greater emphasis upon those difficulties which effected AMC.¹¹ The Commanding General, AMC, responded to this analysis in regard to both particular and overall guidance and implemented the call for greater initiative.¹²

Materiel Readiness Reporting by ARADCOM

During Fiscal Year 1969 certain elements within AMC, including Headquarters, AMC; U.S. Army Electronics Command (ECOM); U.S. Army Missile Command (MICOM); U.S. Army Mobility Equipment Command (MECOM); and U.S. Army Tank-Automotive Command (TACOM), continued to use the monthly materiel readiness reports that the U.S. Army Air Defense Command (ARADCOM) had published. These reports were used to assure that all command NIKE-HERCULES and HAWK missile systems and Fire Distribution Equipment (BIRDIE) were adequately understood and supported on a monthly availability status basis. These ARADCOM reports showed, in addition to gross systems availability data, the number of component failures, the dead-line time, the time to procure parts, the support maintenance time, and the time to apply DA work orders for each major item

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Memo for CG, AMC, 9 Apr 1969, subj: Major Command Summary Evaluations of Unit Readiness, 2d Qtr, FY 1969.

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(1) DF, AMCOR-RE, 18 Apr 1969, subj: Unit Readiness. (2) Ltr, AMCOR-RE, 18 Apr 1969, subj: same.

subassembly. In addition, the reports denoted, by federal stock numbers (FSN) and nomenclature, those critical repair parts that caused an inordinate downtime of a certain component.

The Readiness Office received multiple copies of this report, which in turn was redistributed to the Director of Distribution and Transportation, the Director of Maintenance, the Director of Materiel Requirements, the Comptroller, and the Project Management Staff Officer for Hercules and HAWK. In addition, OPRED issued letter instructions that required certain commodity commands to perform a supply and maintenance analysis of the ARADCOM reports. The commanders sent these analyses to OPRED, and furnished information copies to ARADCOM Headquarters, ARADCOM Regions, U.S. Continental Army Command (CONARC), CONUS Armies, and DA, Deputy Chief of Staff for Logistics (DCSLOG).¹³ OPRED, operating within AMC Headquarters, analyzed the ARADCOM reports and the actions that various AMC elements had taken to correct the maintenance and supply problems that the monthly reports revealed.

The ARADCOM reports indicated that the commodity commands had made significant improvements in correcting engineering deficiencies in those parts and assemblies that had caused a high percentage of failures. The Hercules, HAWK, Fire Distribution Equipment (BIRDIE) and Fire Distribution Equipment (TSQ-51), with their Fiscal Year 1969 average availability rates of 92

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Ltr, AMCOR-RE, 1 Nov 1968, subj: Analysis of ARADCOM Monthly Materiel Readiness Report, RCS AMCOR-101.

percent, 86 percent, 98 percent, and 98 percent, respectively, all showed improvements over their Fiscal Year 1968 respective rates. All of the systems, with the exception of the HAWK, met both ARADCOM and DA standards. HAWK, however, surpassed its
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ARADCOM standard in June of 1969.

In Fiscal Year 1969 MECOM offered several recommendations for improvements in the report. OPRED forwarded these recommendations to ARADCOM for consideration and several of them were adopted. ARADCOM agreed to include serial numbers for generators that failed during the reporting period. Thus ARADCOM assisted
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MECOM in the resolution of generator problems.

Joint Logistics Review Board (JLRB)

On 1 March 1969, the Deputy Secretary of Defense established the JLRB under the Chairmanship of GEN Frank S. Besson, Jr., U.S. Army, former Commanding General, AMC. Membership on the board consisted of important logisticians from all of the armed services and Defense Supply Agency (DSA), and air and ground transportation experts from the Joint Staff of the Joint Chiefs of Staff (JCS). The task of the board was the review of the total logistics support to U.S. combat forces during the Vietnam conflict, to discover if that support could be improved.

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(1) OPRED Historical Summary, FY 1969, pp. 10-11. (2) OPRED Historical Summary, FY 1968, p. 11.

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(1) DA Form 1086, USAMECOM Analysis of ARADCOM Monthly Materiel Readiness Report. (2) Ltr, AMCOR-RE, 24 Oct 1968, subj: ARADCOM Monthly Materiel Readiness Report. (3) ARADCOM ltr ADGDM, 4 Nov 1968, subj: same.

DA soon established guidelines for JLRB actions, the most important of which was the authorization of direct contact between the JLRB and major Army commands. AMC designated OPRED as the focal point for liaison with and actions concerning AMC-JLRB relations. OPRED began its new assignment with communications to other AMC Headquarters elements and to AMC major subordinate commands and selected field activities that outlined the support necessary for the proper AMC support of JLRB requirements.

Expedited Non-Standard Urgent
Requirements for Equipment (ENSURE)

DA promulgated a procedure, known as ENSURE, that expedited non-standard urgent requirements for equipment that overseas commanders had requested. Overseas commanders initiated ENSURE actions by means of requests to the Assistant Chief of Staff for Force Development (ACSFOR) for items to support their military operations; ACSFOR then evaluated these requests and approved or disapproved them. OPRED had the responsibility for the maintenance of a register of ENSURE requirements that DA had assigned to AMC.

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DA msg 909544, 20 May 1969.

17

DA msg 910361, 27 May 1969.

18

(1) Ltr, AMCOR-R, 6 June 1969, subj: Joint Logistics Review Board (JLRB). (2) DF, AMCOR-RE, 11 June 1969, subj: same.

19

AR 71-1, 25 June 1969, subj: Force Development-Army Combat Development.

20

AMCR 525-2, 7 Feb 1968, subj: ENSURE.

In Fiscal Year 1969, OPRED and other elements of AMC Headquarters made many attempts to improve the management of the ENSURE program. First, AMC furnished the Commanding General, 1st Logistical Command, with a complete list of the ENSURE items, with the identification of the AMC Commodity Command and the national inventory control points (NICP) responsible for each²¹ item. Second, AMC requested, DA, DSA, and General Supply Agency (GSA) suppliers of ENSURE items to provide shipping data to the Logistics Control Office, Pacific (LCOP) by telephone. AMC then held the LCOP responsible for the contribution of lift data on ENSURE shipments to Vietnam (VN) at least 14 days before VN arrival on surface shipments and as soon as possible after²² airborne on air shipments. Third, AMC assigned a separate project code to each ENSURE item in order to facilitate identification of the item as it passed through the automated supply²³ system. Finally, on 28 April 1969, the Chief of Staff, AMC, ordered the development of a monthly report to be submitted to the Commanding General, AMC, that would reveal the status of each²⁴ outstanding ENSURE requirement. OPRED developed procedures and a reporting format for this requirement, and the first report

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Ltr, AMCMR-PS, 23 Dec 1968, subj: Request for ENSURE NICP.

²²

AMC msg 38205, subj: ENSURE.

²³

AMC msg 61204, 26 June 1969, subj: Assignment of DA Project Codes to ENSURE Program.

²⁴

Note from the CofS, AMC, 25 Apr 1969.

25

was submitted to the Commanding General, AMC, on 13 June 1969.

OPRED thus provided a single source for AMC by means of a complete register of ENSURE requirements as well as monthly data about each outstanding ENSURE requirement. The Command thereby was able to follow all of its validated ENSURE requests that were in process,²⁶ which by 30 June 1969 numbered 124.

AMC Lessons Learned Program

After September 1967 the Lessons Learned Program had continued to function in accordance with an AMC regulation that²⁷ prescribed its activities within the AMC complex. OPRED had the responsibility for monitoring the Lessons Learned Program for all of AMC, including the disposition of lessons learned from both inside and outside of the Command.

OPRED assured that a coordinated Headquarters, AMC staff evaluation was made of all lessons learned that were received. It returned those lessons that were considered non-valid to the originator, stating the reasons for disapproval. Some valid lessons learned items were also returned because they were believed to be of value to the originator only. Those items that OPRED thought had application to other AMC elements were

²⁵ Memo for CofS, 13 June 1969, subj: Monthly Summary ENSURE Status Report.

²⁶ OPRED Historical Summary, FY 1969, p. 14.

²⁷ AMCR 1-27, 19 Sep 1967, subj: Operational Reports-Lessons Learned.

forwarded, together with the proper implementation by the responsible Headquarters, AMC, organizational component, to the appropriate element of AMC. Finally, OPRED sent to ACSFOR, for information or appropriate actions, those items that were considered to be either of interest to or worthy of evaluation by

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DA. All of this activity by OPRED in Fiscal Year 1969 involved about 101 out-of-house and 181 in-house generated lessons learned. Of the latter lessons learned items, OPRED evaluated 155 and reported 32 to DA.

OPRED also participated in the Senior Officer Debriefing Program, in which DA prescribed that AMC analyze and recommend corrective actions on information gathered from Army materiel. OPRED, as AMC's action office in this matter, reviewed and coordinated 14 Senior Officer Debriefing Reports in conjunction

29

with the proper AMC elements.

Two actions for improvement of the lessons learned program took place in Fiscal Year 1969. One was a Commanding General, AMC, request that AMC establish a suggestion program as a possible source of more lessons learned. OPRED complied and forwarded instructions to all AMC elements to review their approved and adopted suggestions for lessons learned and report those that they believed to be significant to Headquarters, AMC. The

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AR 525-15, 26 Jan 1968, subj: Operational Reports-Lessons Learned.

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OPRED Historical Summary, FY 1969, pp. 15-16.

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Ltr, AMCOR-RE, 25 Apr 1969, subj: AMC Lessons Learned Program.

other action was an AMC letter to the Overseas Customer Assistance Offices (CAO) requesting these offices, because of their practical experiences in the solution and coordination of logistics problems, to submit inputs to the AMC Lessons
31
Learned Program.

AMC Command and Control System (AMCCCS)

The AMCCCS continued to function in Fiscal Year 1969 as a
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part of the DOD program which was primarily concerned with planning. On 31 October 1968, AMC submitted its first annual revision of the five year AMC Headquarters Operations Center Plan to Deputy Chief of Staff for Operations (DCSOPS). This revision called for an orderly and steady improvement and devel-
33
opment of AMCOC. OPRED personnel also briefed Headquarters, AMC, on the functioning of the system under this new plan, including its connections with the Department of the Army Command and Control System (DACCS), as well as ties with the larger Worldwide Military Command and Control System (WWMCCS).

Within its relations to the former system, OPRED conducted one report and monitored two systems in Fiscal Year 1968. In June 1969, OPRED initiated the transfer of responsibility for

31
Ltr, AMCOR-TS, 14 Apr 1969, subj: Newsletter to CAO's-
March 1969.

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For a background on this system, see AMC Historical Summary, FY 1966, pp. 79-80.

33
Ltr, AMCOR-RE, 31 Oct 1968, subj: AMC Headquarters Operations Center Plan.

management of the Unit Identification System Report, which established procedures for broadcasting of Unit Identification Codes (UIC), from the Director of Management Information Systems to the AMC Manpower Agency. OPRED had the responsibility for complying with the Army Force Status Reporting System, a DA requirement that ordered all AMC table of equipment (TOE) units, except units smaller than company-size, to compile monthly command reports for DA.³⁴ OPRED also had to prepare, in the early part of Fiscal Year 1969, AMC reports for the Civil Disturbance Status Reporting System (CIDSTAT).³⁵ According to this system, OPRED submitted monthly evaluations of AMC TOE unit readiness for the execution of civil disturbance missions. As no AMC TOE units had a civil disturbance mission, AMC made several futile attempts in Fiscal Year 1968 to be relieved of this requirement.³⁶ In October 1968, the DA exempted AMC from CIDSTAT reporting and as a consequence AMC notified its reporting elements of the new development.³⁷

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(1) DA msg 894740, 24 Jan 1969, subj: ARFORSTAT Reporting System. (2) DA msg 895165, 28 Jan 1969, subj: same. (3) AMC msg 49081, 20 Feb 1969, subj: ARFORSTAT Reports-RCS-JCS-1052.

35

AR 525-10, Feb 1967, subj: Department of the Army Command and Control Reporting System (DAXREP), chap. 1-9.

36

(1) Ltr, DA DCSOPS, 13 Feb 1968, subj: Civil Disturbance Status Reporting (CIDSTAT). (2) Ltr, AMCOR-R0, 29 Feb 1968, subj: CIDSTAT, RCS-GSGPO-305. (3) Ltr, AMCOR-R0, 21 Mar 1968, subj: same. (4) DA msg 858971, 9 Apr 1968, subj: same.

37

(1) Annex J (Domestic Emergencies), DA Civil Disturbance Plan. (2) Ltr, AMCOR-RE, 30 Oct 1968, subj: CIDSTAT Report (RCS-CSGPO-305).

AMC Operations Center

In Fiscal Year 1969, AMCOCC conducted 151 briefings and presented about 1,000 significant actions with approximately 100 intelligence extracts. Other noteworthy AMCOCC activities included weekly general briefings, 120 special briefings, and 243 Daily Situation Reports for the AMC staff. In addition, AMC activated its augmentation element from 17-25 October 1968 for 24-hour a day operations in support of Exercise High-Heels, in order to provide the Commanding General, AMC, and his staff with current data and status on important logistical and emergency actions underway in the AMC complex.

(U) Customer Assistance Division

The Customer Assistance Division, formerly known as the Theaters Division, had as its foremost tasks the assistance in, or the resolution of, the non-routine logistic problems of AMC customers. Primarily a creation that arose from the ever-growing demands of the SEA conflict, the Customer Assistance Division became a major organizational element of OPRED on 1 July 1969, as AMC reorganization plans required. Replacing the old Theaters Division and its three geographically oriented branches, the new division had instead two functionally oriented arms, the Materiel Support Branch and the Special Field Activities Branch.

38

OPRED Historical Summary, FY 1969, pp. 18-20.

39

Ltr, AMCPT-CO, 17 Jan 1968, subj: Reorganization of AMC Headquarters.

The new division also had innumerable logistic problems in Fiscal Year 1969. In response to these difficulties, the division provided staff supervision for a program of logistic assistance visits to global major commands in order to insure good support to AMC customers; gave staff supervision for the overseas CAO's; and functioned as an intermediary for the major Army and the unified commands in the treatment and resolution of those non-routine logistical problems. In addition, the division executed all of the specific functions that was prescribed in its mission responsibilities.

AMC Customer Assistance Offices Overseas

The AMC CAO's commenced operations with a simple office in Europe in July of 1965. By 30 June 1969, five more CAO's were in action, in Hawaii (Pacific), Vietnam, Korea, Okinawa (Ryukyus), and Thailand. The purpose of these offices was to serve as focal points for all AMC non-routine logistical matters which occurred within their respective spheres of responsibility. They performed this service under the staff supervision and the operational control of the Customer Assistance Division.

The CAO's consisted of a small group of people representing Headquarters, AMC. The chief of each office was a personal representative, for the Commanding General, AMC, to the overseas command he served. Personnel of the offices, as well as many staff

technical representatives, contacted their CONUS headquarters almost daily. They also kept channels open with AMC, DSA, and GSA, through which they received logistical intelligence and relayed it to overseas commanders. Thus the CAO's, by their extensive contacts, were able to identify those major logistical problems that confronted the major Army commanders and to effect ready solutions.

Late in Fiscal Year 1969, the CAO's assumed an added duty. In order to save money and to improve logistical support to users of AMC materiel, the Chief of Staff, AMC, on 10 March 1969, signed a policy letter that attached, for administrative control, two International Logistics Field Office (ILFO)—the ILFO-Far East and the ILFO-Europe-to-CAO-Pacific and CAO-Europe, respectively. This action left the operational control of the two ILFO's with the Director of International Logistics, and implemented a previous agreement, dated 25 February 1969, between the Director of International Logistics and the Chief, Operational Readiness Office.
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Quick Reaction Assistance Program

The purpose of the Quick Reaction Assistance Program, which AMC established in January 1966, was to assure speedy AMC response to the many U.S. Army, Vietnam (USARV) requests for assistance in

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- (1) Ltr, AMCOR-TS, 10 Mar 1969, subj: Attachment of International Logistics Field Offices to Customer Assistance Offices.
- (2) OPRED Historical Summary, FY 1969, pp. 23-24.

dealing with the increasing logistical support requirements in
42
SEA. The program operated chiefly by means of voluntary
civilian employees within the AMC organization. AMC subordinate
commands, NICP's, and depots kept current rosters of these
personnel in various grade and skill levels, within about 40
functional areas of supply and maintenance operations and manage-
ment. The employees listed on the rosters needed current pass-
ports, visas, and medical inoculations, for they were on notice
to leave CONUS within 48 hours and to remain on temporary duty
(TDY) in Vietnam for a maximum of 180 days.

In Vietnam these civilians functioned as support groups in
logistical matters, and they collectively bore the designation
of Quick Reaction Assistance Teams. Military personnel, upon
special requests, accompanied these teams. This program was so
beneficial to users in Vietnam that AMC extended the range of
operations to include users of AMC materiel in Okinawa, Thailand,
Korea, and Europe. As of 30 June 1969, AMC had some 500
personnel available for the possibility of similar future
43
operations.

Centralization of Staff Cognizance of Assistance

In Fiscal Year 1969, AMC fulfilled a persistent need for a
focal point within its Headquarters that would give it a

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DA ltr, AGAO-CC LOG to CG, AMC, 26 Nov 1965, subj: Quick
Reaction Assistance Teams.

43

OPRED Historical Summary, FY 1969, p. 28.

centralized overview of logistical assistance and liaison. This fulfillment came with the concept approval by GEN Redling, the Deputy Commanding General for Logistics Support (DCGLS). The Chief, OPRED, assumed the function of supervisor, and the Customer Assistance Division had responsibility for coordinating staff actions.⁴⁴ To assist in concept implementation, AMC established an ad hoc committee, under the chairmanship of OPRED. As the fiscal year ended, the committee was in the process of discovering what assistance/liaison programs existed within various staff elements of Headquarters, AMC, what numbers and grades of personnel staff supervised these programs, and what OPRED had to do to execute the DCGLS approved concept of the centralization of the overview of AMC assistance/liaison efforts within OPRED.⁴⁵

National Cash Register 500 Computer

By October 1968, the Commanding General, 1st Logistical Command, USARV, after a long period of increasingly severe problems with the operation of the National Cash Register (NCR) 500 Computer, appealed directly to the Chief of Staff, AMC, for assistance, to include the services of a 12-man team of specialists. Headquarters, AMC, acceded to the request, and assigned the responsibility for aid to the Customer Assistance Division. The division thus assumed the duties of resolving constant problems with which

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DF, AMCOR-TS, 19 June 1969, subj: Logistic Assistance and Liaison, from DCGLS.

⁴⁵

OPRED Historical Summary, FY 1969, p. 29.

a series of agencies had been unable to treat, including various DA staff elements, CONARC, the Quartermaster School, Vietnam, the CAO-Vietnam, and a number of directorates at Headquarters, AMC.

The division's investigation, subsequent to 3 weeks of review and evaluation of all extant documents that pertained to the troubles, identified the most prominent difficulty and proposed a solution that all of the effected parties thought agreeable. This chief problem lay, the investigators declared, in the personnel who operated NCR 500 computers in Vietnam. Many of the personnel possessed inadequate training; others, because of faulty assignment practices, manned the wrong positions.

Further exploration by the division focused the problem upon the Quartermaster School, which was training enlisted supervisors at the E-7 level, while the tables of distribution (TD) for the involved units required E-6's. With the problem identified, the division thought it best not to send the previously requested AMC assistance team to the 1st Logistical Command, but rather to solve the problem immediately by the dispatch to that command of 12 enlisted men (E-7's), who, the division had just discovered, had the desired training in NCR 500 computer operations and who were awaiting assignments to Vietnam. AMC approved the request, and the arrival of the men gave the Commanding General, 1st Logistical Command, his own personnel resources for a long-range, problem-solving capability.

AMC Personnel Performing Duties Overseas

The Customer Assistance Division served in Fiscal Year 1969, in place of the old Theaters Division, as the focal point within Headquarters, AMC, for the coordination and the completion by AMC personnel of non-routine actions that furnished supply and maintenance technical help to Army commanders abroad. The principal method of executing this mission was a report, which OPRED first implemented in December 1967, subsequent to many months of study and experimentation. The report, which concerned personnel performing AMC missions overseas, was an integral part of a system that intended to give management necessary data for an improved utilization of current and proposed personnel spaces within the AMC complex for the support of overseas users of AMC materiel. Collected from information that the overseas CAO's initially had supplied, the report was made on the 15th of each month. It summarized the number of active personnel involved. AMC personnel on duty in Vietnam as of 15 June 1969 is shown in the chart on the following page.

The ever increasing demands increased tactical and logistical operations in Vietnam forced the division to concentrate its attentions upon that country in Fiscal Year 1969. Although this was a shift from the previous year's primary devotion to the provision of services for global missions, the division nevertheless did continue to offer technical assistance to AMC materiel users in many areas of the world in Fiscal Year 1969.

⁴⁷ Ibid., pp. 25-26.

Organization		Military		Civilian		Contractor	Total
Code	Command	PCS	TDY	PCS	TDY		
M1	HQ, AMC		3	2	2		7
M1	AMC SI&A	72	12	127	150	54	415*
M2	ECOM	1	6	177	37	103	324
M3	MICOM	10		69	26	281	386
M4	TACOM	2	13	75	19	7	116
M5	MUCOM		7	4	10	4	25
M7	AVSCOM		4	75	19	146	244
M7	TECOM				5		5
M8	WECOM	5		34	10	13	62
M9	MECOM	—	<u>4</u>	<u>103</u>	<u>18</u>	<u>7</u>	<u>132</u>
	Totals	90	49	666	296	615	1716*

*Does not include 366 military PCS personnel assigned to Project FLAT TOP (Floating Army Maintenance Facility).

(U) Other Projects and Tasks

In addition to its regular activities, in Fiscal Year 1969, the Customer Assistance Division pursued many special projects and tasks. Because of the increasing emphasis upon obligations in Vietnam, a majority of these extra activities dealt with that country. Most of the SEA operations of the division concerned various minor items, such as the assurance of the shipment of steel tank tracks in sufficient quantities to rebuild 100 M48 tanks; the dispatch of technicians to assist in the rebuilding of 2 1/2- and 5-ton multifuel engines; and the determination of two weaknesses in the use of armor vests. The division's extra activities outside of Vietnam concerned similar items.

Introduction

(U) The Plans Division remained structurally unaffected by the reorganization of OPRED in Fiscal Year 1969, and continued to fulfill its functions as the 1 July 1966 AMC reorganization had dictated. ⁴⁹ While its overall framework was stable, the division did have to act upon several directives that emanated from higher headquarters. As a consequence, the division participated in the direction and control of the AMC Contingency, Mobilization, and Emergency planning tasks, the coordination of the troop stationing requirements on AMC installations, and the provision of an interface between the total logistics system and the field army. The division managed both types of duties through its two sub-units, the Contingency War Plans Branch and the Emergency Plans Branch.

New Classes of Supply

(U) Early in Fiscal Year 1968, DA decided to restructure the Army supply system. Accordingly, on 31 August 1967, the Headquarters, DA, published a directive that proclaimed a new class of supply structure, to be effective 1 January 1968 and to be fully operational by 1 January 1969. ⁵⁰ Soon thereafter, DOD

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AMCR 10-2, 1 Jul 66, subj: Headquarters, AMC, Mission, Organization, and Functions Manual.

⁵⁰

DA ltr, AGAM-P(M) (23 Aug 67) LOG T WHB, 31 Aug 1967, subj: Terminology of Supply Categories of Materiel.

gave further policy guidance on this matter. AMC had a very significant part in these developments, and because of the Army's emphasis upon preparedness, all military planning groups and logistic planners were highly dependent upon the classes of supply and associated factors. Therefore, AMC placed the responsibility for its role in the Army implementation of the new class structure in the hands of its Plans Division.

(U) The Concepts and Doctrine Work Group of the Contingency War Plans Branch, Plans Division, made such progress on this task that the Army was able to initially implement the restructuring in terms of DA policy in a December 1968 publication.⁵² OPRED also assumed a new task in this matter. In view of the scope of the logistics coverage that the restructuring encompassed, AMC designated OPRED as the classes of supply point of contact within Army channels, and with the other military services and DSA.

(U) OPRED's implementation of the new supply structure was far-reaching. Not only did the new classes and subclasses include the area of planning, but they reached into the wider field of logistics. The supply form that arose from OPRED's efforts thus embraced two systems, the supply and distribution system and the maintenance and transportation system.

51

DODI 4165.49, 20 Dec 1967, subj: Terminology of Supply Categories of Materiel (Classes of Supply).

52

AR 11-8, 20 Dec 1968, subj: Army Programs, Logistic Policies.

(U) In accordance with a prescribed DOD international color designation and AR 11-8, the use of a color marking system was put into effect. By the use of roman numerals and an alpha suffix, which showed the major class and subclass, this system made it possible for supplies to be clearly identified. As a result, when shipments were made to oversea areas they could be directed to specific Army-in-the-Field supply and maintenance units. Moreover, to aid in understanding the new system, OPRED gave a series of briefings to orient selected AMC officer and
53
civilian personnel.

Contingency Planning Evolution

(U) The Plans Division developed, or assisted in developing several contingency planning tasks in Fiscal Year 1969. For example, the Contingency War Plans Branch participated in the development of a Quick Reaction Inventory Control Center (QRICC) which was to be used in support of contingency operations. This was accomplished by building into the 15th Corps Support Brigade at Fort Lewis, Washington, capabilities for stock control, data processing, maintenance management, supply support, and repair parts supply.

(U) DA assigned AMC the duty of cooperating with USCONARC and USACSC (U.S. Army Computer Systems Command) in the development of the guidance and assistance for the support of the 15th Corps

Support Brigade in contingency planning. AMC also had to furnish the QRICC, in a mutually acceptable format, data concerning automatic supply packages. To effect this, the Command had to consolidate into one data package or computer tape all requirements that the commodity commands had developed and the equipment density data that they had utilized to make their computations.

(U) The support of AMC for the QRICC opened a new avenue for the initiation of a project for the revision of AMC's existing system of contingency plan computation. This current system dated back to AMC's inception in 1962. After that time, the Reorganization Objective Army Divisions (ROAD), the tailored force concept, and the Modification Table of Organization and Equipment (MTOE) concept came into existence. As a consequence, AMC's predocumentation methods were badly outdated. To revise them, the Logistics Systems Support Center began a project of developing an AMC contingency planning standing operating procedure.

(U) As of 30 June 1969, the Center had not completed its problem concept, however, it had reached some tentative outlines. It hoped, for example, that its automatic supply packages could be related to the Authorized Stockage Lists (ASL) and the Prescribed Load Lists (PLL) of all of the units in the Strategic

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Ltr, HQ, DA, AGSD-C(M) (26 Feb 1969) CSAVCS-MF, 27 Feb 1969, subj: Mission, Training and Employment Statement for the Quick Reaction Inventory Control Center (QRICC).

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Army Force. Then, by planning these requirements into a centralized data bank, the Center could easily gather automatic supply packages almost as soon as the need for a contingency force became apparent. By consulting with the data bank, the Center could ascertain beforehand if it were possible to support a contingency plan, and if so to what degree. As a further benefit, the QRICC could be furnished a computer tape that contained data pertaining to all planned shipments under automatic supply procedures that would be established and these shipments could be placed under immediate supply control.

(U) The Center thus sought to meet the current needs and to anticipate the future requirements of contingency plans. It was recognized that the realization of these ambitions was subject to the realities of Fiscal Year 1970 priorities. Nevertheless, the Center felt that, with the beginning of Phase III of National ADP Program for AMC Logistics Management (NAPALM), it could incorporate its ideas into the NAPALM goal for contingency plans.

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AMC Support of the Apollo Space Program

(S) As the U.S.-manned orbital space flights crossed over large parts of the Middle East-Southern Asia-Africa South of the Sahara (MEAFSA) area, AMC had to participate in contingency plans for the armed release of astronauts and capsules that unfriendly

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OPRED Historical Summary, FY 1969, pp. 43-44.

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forces in that area might seize. In May 1965, AMC released
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their supporting plan for the accomplishment of such a mission.
Following this plan, the Command computed its Class I, III, and V
requirements and selected, packed, and put into reserve the
necessary materiel at AMC depots. These materiels remained ready
for use, and several times Headquarters, AMC, alerted its field
organizations to be prepared for such usage. The most recent of
58
these alerts was during the July 1969 Apollo 11 moon flight.

Inactivation of the 95th Composite
Service (CS) Company Calibration (Army)

(C) During this fiscal year, DA requested AMC to furnish a
statement on the CONARC proposal that the 95th CS Company Calibra-
tion (Army) unit be deactivated. This STRAF (U.S. Army Strategic
Forces) unit, which DA had assigned to AMC (MICOM) and had
stationed at Redstone Arsenal, had as its primary mission the
support of CONARC, although it also supported AMC. It did so by
providing secondary reference and secondary transfer calibration
service for all test and measuring equipment that required such
service for use with Army materiel in depots, general support,
59
direct support, and tactical units when needed.

(C) The primary reason for the CONUS assignment of the

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CINCSTRIKE/USCINCMEDIAFSO OPLAN 7066, 19 Dec 1968.

57

USAMC OPLAN 566M, 3 May 1965.

58

USAMC OPLAN 7066, 6 June 1969.

59

DA msg (C) 896469, 6 Feb 1969, subj: TO/TD Structure
Ceilings and Conversion to G-Series (TOE).

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company was the establishment of a rotational base for military
calibrators returning from overseas and the provision of an Army
contingency capability in support of its global metrology and
calibration system. The 95th CS Company was the only military
calibration organization within CONUS that was capable of deploy-
ment. This unit represented the sole calibration capability
within the overall Army structure to respond to contingency or
emergency calibration support requirements. This was because
only two such units existed in the Army, and the other was already
in deployment in U.S. Army, Pacific (USARPAC).

(C) A letter to DA outlined the adverse effect the disband-
ment would have on AMC and indicated that the Command would provide
the required structure strength from its manpower rather than
permit deletion from the force structure. However, AMC preferred
that DA maintain the company in its active status as a STRAF
60
unit. DA concurred in this recommendation and notified AMC
that this unit would be on the AMC troop list for Fiscal Year
1970. Manpower for the company was allocated from other than AMC
sources and as a result the company would continue to be assigned
61
to AMC and would remain in the STRAF force plan package.

AMC Partial Mobilization
Expansion Plan, FY 1970

(U) Because of the late receipt of the DA Partial Mobilization

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Ltr, Actg CofS, AMC, to ACSFOR, 5 May 1969.

61

Ltr, DA, AGSD-C (13 June 1969) ACSFOR, to CG, AMC, 25 June
1969, subj: TO/TD Structure and Manpower Authorization.

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Expansion Plan Fiscal Year 1969/1970, the Plans Division was unable to publish the Partial Mobilization Plan for AMC for Fiscal Year 1969. Efforts were directed toward an early publication of AMC PAM 70. This plan was developed during May and June of 1969, and publication and distribution was scheduled for 62 July.

(U) The new plan was similar to the AMC PAM 68 that it superseded. The chief difference between the two plans was that the Major Item Data Agency (MIDA) assumed more responsibility. Formerly, MIDA had provided the NICP's/ACMA's (Army Class Manager Activities) with data that these agencies used to compute Purpose Code T assets and requirements. Under the new plan, MIDA had to supply those agencies with complete equipment status lists for selected reserve force units, to include line item Purpose Code T levels, assets and over/short positions. The division felt that the endeavor, even though it required much reprogramming by MIDA, would be beneficial because it would save processing time that the NICP's/ACMA's had formerly utilized to prepare equipment status listings. 63

Post Hostilities Planning

(S) Post hostilities planning gained a steadily increasing importance in Fiscal Year 1969. The purpose of this planning was

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Ltr, DA, AGAM-P(M) for PFFP, 18 Apr 1969, subj: Department of the Army Partial Mobilization Expansion Plan for FY 1969/1970 (PAM 69/70).

63

OPRED Historical Summary, FY 1969, p. 46.

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to develop plans and procedures for the withdrawal of troops and equipment from South Vietnam after the conclusion of the hostilities there. The Plans Division, OPRED, had the responsibility for representing the AMC in such planning, and, as a consequence, coordinated with ODCSLOG, DA, in the development of a Logistic Annex for the proposed Army Post Hostilities Plan.

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(S) On 2 October 1968, DA forwarded the Army Plan to AMC.

Shortly thereafter, DA summoned representatives from the Plans Division and other AMC staff offices to a T-Day Planning Conference held at Cameron Station, Virginia. The purpose of this conference was to identify the problems to be met and the policy decisions, if any, that would be needed in the withdrawal of South Vietnam excesses. OPRED, who had directed a team to the Republic of Vietnam for USARPAC to evaluate the need for technical assistance personnel in the event that the old Post Hostilities Plan unfolded, sent representatives to the conference, as did DA, USARPAC, USARV, the 1st Logistical Command, the 2d Logistical Command, the MTMTS (Military Traffic Management and Terminal Service), the DSA, and the GSA.

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(U) OPRED soon gained the responsibility for T-Day operations within AMC. On 6 November 1968, the Deputy Chief, OPRED, and the

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Ltr, OPS PL WP, Headquarters, DA, Office of DCofS for Military Operations, to Headquarters, AMC, 2 Oct 1968, subj: Army T-Day Planning Directive.

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DA msg 8135162, DTG 092141Z, Oct 1968, subj: Conference on Retrograde of Vietnam Excesses.

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Special Assistant for Supply Operations [REDACTED] briefed the Commanding General, AMC, about the state of current planning and the results of the DA, AMC, and USARPAC coordinating conference. On 13 November 1968, the Deputy Chief, OPRED, became the Project Officer for T-Day operations. To assist him in the performance of his mission, two military and two civilian planning officers from OPRED joined his T-Day Project Office on a TDY basis. ⁶⁶

(U) The new office immediately began a number of operations to coordinate information and planning among the participants in T-Day operations. During the period 2-5 December 1968, the Project Officer met with the Team Chiefs of Project PATRIOT to determine the current status of the 750 series, TM's, Procedures for Rapid Deployment, Redeployment, and Retrograde. As a result of the meeting, the Project Officer directed the Team Chiefs, who were representatives from each of the commodity commands, to revise their command manuals to include coverage of all items scheduled to be in-country by 31 December 1968 and to include coverage of the roll-on roll-off procedures. The Project Officer and many representatives of AMC staff offices went to a follow-on T-Day Planning Coordinating Conference at Headquarters, USARPAC, in mid-December 1968. On 19 December 1968, the Office dispatched a deck of automatic processing cards to USARPAC by means of AUTODIN. These cards not only covered the preservation, and packaging

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AMCC 1-32, Project Officer for T-Day Operations, 13 Nov 1968.

materiel requirements for all TM 750 series TM's, but changes to up-date the previous deck in use by USARPAC and the latest requirements that the various commodity commands had developed to make the 750 series mannual current.

(U) Such an intensification of T-Day activities prompted the Commanding General, AMC, on 13 January 1969, to establish the Office of the Special Assistance for Post Hostilities Logistic Operations and to appoint a general officer to act as the Special Assistant.⁶⁷ He also directed two other AMC actions in this area. One was the publication, in June 1969, of the AMC T-Day Planning Directive which was in support of the Army T-Day Planning Directive.⁶⁸ The other was the release of 2 OPRED representatives from the SA-PHLO Office at the end of June to⁶⁹ return to duty with OPRED.

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Ltr, AMC, CG, HQ, AMC, 13 Jan 1969, subj: Post Hostilities Logistic Operations.

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AMCSA-PHLO, 2 June 1969, subj: U.S. Army Materiel Command T-Day Plan.

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OPRED Historical Summary, FY 1969, pp. 49-51.

CHAPTER III

(S) PROJECT MANAGEMENT

(U) Background

The original reason for establishing the project management system within AMC was that this system offered solutions to many problems in the development and production of modern weapons systems. Principally, these problems concerned steadily varying emphasis in program goals; rapid increases in the size, complexity, and cost of weapons systems; requirements to gauge the usefulness of all weapons systems as a portion of the larger national defense position; and, perhaps most important demands for the limited number of personnel who had the training, qualifications, and special research and development managerial skills, to meet the purposes of the AMC weapons systems programs.

In addition to these problems, AMC had an inherent difficulty in the production of weapons systems, a difficulty that expressed itself in its two-faceted structure: the staff was functionally-oriented, while the command was commodity-oriented. AMC attempted to rectify all of these problems by means of a selection process and a production-oriented special group. This attempt involved the creation of a system of project managers who were given varied powers. They not only received the authority, the functional apparatus and the resources, but they also had direct links with the AMC Headquarters, in order to strengthen their position and to guarantee their mission accomplishment. Thus the project

managers were able to utilize the staff without a potential stifling effect to their programs that supervision might cause. They acted as a free agent in the use of their allotted personnel and funds, and used staff services only when necessary.

AMC encountered several management difficulties in an attempt to put the project management system to use. These problems were related to the reasons that the system was put into use: when a program was expensive, when it was complex, when it required comprehensive supervision and when it drew the attention of some high-ranking military or civilian official. When a large project began operations it was open to criticism because of its size and because of the responsibility and authority of the project manager. Specific objections that arose included, the charge that the project managers would inevitably clash over priorities in men, materiel, and funds. Other noteworthy objections were that the system was so large that it invited Department of Defense (DOD) and Department of the Army (DA) interference with AMC programs and that AMC did not have the necessary number of qualified personnel to adequately fulfill the duties of project managers.

AMC felt, however, that each of these objections could be overcome by the practical workings of the project management system. To the first objection, for instance, AMC conceded that clashes would indeed occur; it noted, though, that such conflicts had occurred under the previous system, and believed that the new systems would simply expose older difficulties and thus make them

more easy to resolve. In regard to the second objections, AMC countered that DOD and DA already supervised AMC programs, and that the project management system might reveal problems to AMC Headquarters before other agencies discovered them. As for the final objection, AMC believed that the project management system would increase rather than exhaust the number of project managers. AMC argued that its free grants of both authority and responsibility to the project managers would give them a reward incentive to do well and, moreover, AMC hoped that the system would work so well that it would produce good project management personnel by on-the-job training. The Command displayed faith in this system by using it as a part of the training for those general officers who were destined for a future in logistics.

Having made the decision to implement the project management system, AMC attempted to fulfill a major portion of its logistics mission in the supply of complex modern weapons systems that demanded particular attention. The most important facet of this system was the intimate relationships between the project managers and the Commanding General, AMC. This was because this relationship ensured several favorable features in the operation of the project management system. These features included an assurance of high-level AMC interest in project managed programs and a working accord between the project management and functional control staffs; the necessity of the pursuance of the guidelines and practices that regulations outlined in each functional area,

because of the close supervision of the Commanding General, AMC;
and the sureness of command response from all project managers
to any program desire of the Commanding General, AMC, because of
his function as their immediate head.¹

(U) Guidance and Control

Shortly before the beginning of Fiscal Year 1969 the AMC project management system underwent a series of alterations in order to conform to the findings of the DA Board of Inquiry on the Army Logistics Systems, also known as the Brown Board. These changes, which were embodied in an Army regulation, followed the board's recommendations by the establishment of the responsibility for the commodity management of an item upon the system support managers when that item had been initially procured and when it had successfully passed its production validation tests. This step permitted the Commanding General, AMC, thereby to convert existing project management offices into product management or systems support management offices whenever he thought that he should do so. Moreover, the Commanding General, AMC, was able to effect this simply by signing a product manager's charter and by submitting it to the Secretary of the Army for approval.²

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For a background into the origins of the project management system, see Raymond J. Snodgrass, The Concept of Project Management, AMC Historical Studies, No. 1, June 1964.

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(1) AR 70-17, 19 Jan 1968, subj: R&D Systems/Project Management. (2) AMCB 3-66, 30 June 1967, subj: Management of Materiel Systems. (3) AMCR 11-16, Vols. I and III, Feb 1966, Project Management Concept and Policies.

(U) Program Management Concepts
in Fiscal Year 1969

AMC, and particularly GEN Ferdinand J. Chesarek, who assumed command of the AMC on 10 March 1969, began to subject the manner in which the project management system had previously operated to severe criticism. General Chesarek believed that the major difficulty with the system was the increasing number of project-managed programs. This state, occurred, the General reasoned, because of the many demands of the Vietnam war. This conflict not only brought about many programs that required special management, but also kept a number of programs under such management that, according to management policies, should long ago have been discontinued in their present form and have been placed under functional or product management. Some of these projects even had an artificially extended life span of four, five and even more, years. Moreover, the number of project managers had grown to 67.

General Chesarek assumed that the remedy to this situation was consolidation and decentralization because, while he believed that the project management system was generally efficient, he also supposed that the project manager concept had been over-employed. The result was that every program became routine, for, with everything project-managed, nothing in effect was project-managed.

The assumption of a plateau-like phase of activity in filling

Vietnam requirements in Fiscal Year 1968 afforded the General a chance to effect his beliefs. The first project manager offices to be eliminated were those which had outlived their normal life cycles. A number of others underwent consolidation. General Chesarek thus reduced his span of control, and, in addition, he made most of the project managers responsible to the commodity managers, who controlled the technological foundation. For the future, General Chesarek intended to concentrate the application of the project management concept to selective programs and give the active project managers the necessary priorities to accomplish their respective missions. His own preferences in this selection were, however, limited by regulation, for the Office of the Secretary of Defense (OSD) specified that any project whose research and development cost exceeded \$25 million and whose PEMA cost were more than \$100 million would be project-managed.³

With the decentralization and consolidation decision made, AMC's problem became one of implementation. This required planning. One of the most prominent planning inputs for this effort was a study from the Army Management Engineering Training Agency (AMETA) at Rock Island, Illinois. This study formed the primary basis for the AMC Project Management Decentralization Plan, which required so much man-effort that it did not appear until after the start of Fiscal Year 1970.

³ [Ed.], "A Visit With AMC's Commander," Armed Forces Journal, Vol. 107, No. 1, 6 Sep 1969, pp. 16-23.

The guidance for the preparation of this plan, however, came from a Commanding General, AMC, letter of 10 June 1969. In this letter, the Commanding General set forth his ideas about how the new project management concept should function. His ideas stated that all project managers had, in effect, the force of Commanding General, AMC, authority in the conduct of their operations; that project and product managers no longer needed to report to him, either directly or through a major subordinate commander, in order to exercise this authority; and that he believed that, as long as a project was essential and needed life cycle management, project managers were the best way to deal with special programs. The Commanding General, AMC, concluded his letter with the opinion that only one type of vertical, life-cycle intensive management should be given formal recognition and be proscribed for AMC-wide use, that is, that as established

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in AMCR 11-16 for project/product management offices.

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(1) Ltr, CG, AMC, to major subordinate commands, 10 June 1969, subj: Review of Project Management. (2) For background information, see AMCR 1-12, Nov 1968, subj: AMC Policy Book. (3) Report, Project Management in the AMC-Scope and Operation, by Office, Special Assistant for Project Management, 27 Nov 1968. (4) Memo, CG, AMC, to General Lang, 5 Apr 1969, subj: Review of Project Management. (5) Memo, CG, AMC, to Director, US Army Management Engineering Training Agency, Rock Island, Ill., 8 Apr 1969, subj: same. (6) Memo for Record, S. Clements, Principal Assistant to S/A for Project Management, 9 Apr 1969, subj: same. (7) Memo, General Lang, to AMCCP, subj: same. (8) Msg, S. Clements, to CG, MICOM, 8 Apr 1969, subj: same. (9) Memo, CG, AMC, to all Project/Product Managers, USAMC, 28 Apr 1969, subj: same. (10) John J. Doody, Dep Director of Plans and Programs, 17 Apr 1969, subj: Project Manager Charters.

The project management decentralization plan, that resulted from this input of plans and ideas, offered a comprehensive method for the reduction of waste and the increase of efficiency in the operation of the project management system. The plan, which was not released until 25 August 1969, offered a greatly altered concept of management that featured a reduced span of control by the Commanding General, AMC; a delegation of authority that was commensurate with the responsibility to the commodity commanders; an exercise of centralized management control at Headquarters, AMC, through the existing functional organization; and the utilization of an effective management information system at Headquarters, AMC, in order to analyze the status and the work of the commodity commanders. The plan also presented several recommendations, which included the abolition of the so-called "Thru-To" concept within AMC and the corollary assignment of all but three project/product managers—Main Battle Tank, Mallard/RADA, and Special Mission Operation—to the commodity commanders; the delegation of authority to the commodity commanders in order that they might propose the consolidation or disestablishment of those project/product managers that were under their command; the reduction or elimination of several individual project manager staff offices (PMSO's); the elimination of duplication and overlap between the project/product managers and the functional managers; the critical evaluation by the commodity commanders of the necessity for decentralization of their assigned project/product management office functions elsewhere; and the redefining of

the role of the project/product manager and the commodity commanders and the corresponding revision of the formal management system for those managers.

(U) Decentralization Plan Implementation

Before the end of Fiscal Year 1969, General Chesarek began to put into action all of these decentralization ideas and plans. One immediate result was an approved reduction in the number of project managers from 67 to 49. Ten of the 18 eliminated projects had their functions assigned to commodity commands. These consisted of: Flat Top; M-113 Italy Co-Production; M-107/M-110 Artillery; Amphibians and Watercraft; Mortar Ammunition; Multi-fuel Engines; Rifles; GOER Vehicles; Sergeant; and Artillery Ammunition. The functions of the other eight projects were combined with other project manager offices. These included: MALLARD and Random Access Discrete Address (RADA); Special Warfare and Special Mission Operations; Manned Aerial Vehicle for Surveillance and MOHAWK, Utility Tactical Transport Aircraft System (UTTAS) and IROQUOIS; Air Traffic Management and Position and Navigation Systems; Selected Priority Operations and TPQ-28; Air Defense Control and Coordination and Target Missile; and AACOMS, TAS, Teletypewriter and COMSEC. AMC moved two other offices from Washington; the Aircraft Weaponization transferred to the U.S. Army Weapons Command (WECOM) at Rock Island, Illinois; and the Manned

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Project Management Decentralization Plan, 25 Aug 1969.

Aerial Vehicle for Surveillance went to the U.S. Army Aviation Systems Command (AVSCOM) at St. Louis, Missouri.

In addition to these project manager operations, AMC conducted a study, which was not yet completed by the end of June 1969, that was known as "Phase II Study of Project Managers." The purpose of this study was to determine whether the commodity commands or the headquarters level of AMC should exercise project manager control of more projects. This type of study, as well as the previously mentioned reorganization, studies, and plans, indicated to a great extent the directions in which General Chesarek would lead the AMC. Basically, in March 1969, when General Chesarek assumed command of the AMC, he faced an almost impossible leadership task. This was due to the AMC make-up. Some 190 commands, agencies, or individuals reported directly to his Command Group. This total included nine major subordinate commands, 19 depots, nine central laboratories, 67 project managers, 54 separate installations and several varied headquarters elements.

By means of his reorganization, General Chesarek proposed an improved and simplified management structure that would simultaneously allow him a better control over assigned missions and functions while relieving him of the tedium and responsibilities of directly providing guidance to subordinates who directly reported to him. At the highest level of change, for example, General Chesarek proposed, and later implemented, a scheme which called for three deputy commanding generals and a civilian deputy

to serve under him. These included two existing positions: one held by the AMC Deputy Commanding General, who served as the Commanding General's personal representative and as the AMC's resources manager; the other was the Deputy for Laboratories. In addition, General Chesarek proposed deputy commanding generals as heads for Materiel Acquisition and Logistics Support. The former was to be in charge of the flow of materiel from the industrial base; the latter supported the Army in the field. As this proposal indicated, the Commanding General intended to provide direction for the new AMC by relying upon continuity and originality. Thus he not only built upon established patterns, but he also employed proven new concepts. For instance, he re-aligned the new headquarters on the basis of AVSCOM, which was set up in St. Louis as an Army systems command model and as a test area in middle management.

(C) Aircraft Projects

Cheyenne

(U) The Cheyenne AH-56A helicopter, formerly known as the Advanced Aerial Fire Support System (AAFSS), was a dual-purpose attack helicopter that continued under development in Fiscal Year 1969. The Army wanted this aircraft for use as a stable aerial weapons platform to escort helicopter-borne personnel and to provide supporting fire for any combat operations. The Army had

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[Ed.], "AMC Enters A Second Generation," Armed Forces Management, Vol. 15, No. 9, June 1969, pp. 66-69.

great hopes for the Cheyenne. When completed, it was to incorporate as design features an integrated avionics subsystem, a computer-driven central fire control system, and a flexible armament consisting of wire-guided antitank missiles, rockets, a grenade launcher, and an all-full-circle turret belly machinegun. Overall, the Cheyenne was to be the fastest, best-navigated, deadliest-firing, and most unassailable-in-flight rotary wing aircraft for the next decade.

(U) All of these expectations miscarried. The Cheyenne Project suffered grave difficulties in Fiscal Year 1969 and faced termination as Fiscal Year 1970 began. The basic problem was that the contractor simply could not deliver what the AMC wanted on schedule. This contractor failure effected the two concurrent management programs that comprised the Fiscal Year 1969 Cheyenne Project—the Engineering Development Program and the Production and Procurement Program. The former program experienced repeated delay and schedule modifications as a result of transmission problems, and two minor incidents in 1968 and one major accident in 1969. Because of these delays, the latter program could not satisfactorily resolve the causative programs within its schedule limitations. Therefore, AMC was forced to follow procedures in the use of its management tools for contractor assistance, and issued the contractor a "Cure Notice."

(U) The "Cure Notice" was a demand to the contractor to offer solutions to overcome its failure to fulfill the contract. The

Lockheed California Company, [REDACTED] for Cheyenne, responded in an attempt to arrest the program's slippages and increased costs. AMC found no favor with the Lockheed solutions, though, and it accordingly terminated the Cheyenne (AH-56A) Production Contract on 19 May 1969 by reason of default.

(U) AMC decided to give Lockheed another chance, and on 20 May 1969 that corporation presented a revised development program that would permit the completion of the weapon system development without harming the production schedule and other production related considerations. This plan provided a means for negotiations that would lead to a revised program which would permit the continuance of the tests on the weapons system concept and the development of the Cheyenne subsystems. These negotiations were not completed as of 30 June 1969, however, because Lockheed won approval for a request to postpone pertinent cost data until July 1969.⁷ Moreover, these negotiations continued far into Fiscal Year 1970. Eventually this deadlock and the resulting production delays convinced the Commanding General, AMC, that a Cheyenne production cancellation was in order.⁸ By the close of Fiscal Year 1969, AMC believed that an entire restructure of the Cheyenne Project was necessary. Consequently, in June 1969, concurrently with Lockheed's preparation of program recommendations and in preparation for a DA evaluation of their proposals, AMC conducted

⁷ Cheyenne Historical Summary, FY 1969, pp. 1-2.

⁸ [Ed.], "A Visit With AMC's Commander," Armed Forces Journal, Vol. 107, No. 1, 6 Sep 1969, pp. 16-17.

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an independent evaluation of the Cheyenne RDTE program. The result of this evaluation was the development of a revised milestone schedule that eliminated production-oriented items.

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Manned Aerial Surveillance and
Target Acquisition System (MASTS)

(C) The MOHAWK Surveillance System and the Manned Aerial Surveillance and Target Acquisition System were combined as the MASTS Project as of 1 July 1969 and eventually was to be relocated at AVSCOM in St. Louis, Missouri. Planners decided that both the MAVS and the MOHAWK were necessary for future threats to the defense of the United States. The intent of the two systems was to keep the United States aware of new technological developments and new military systems by means of surveillance system that provided instantaneous (real time) day and night battlefield intelligence through the use of airborne sensors.

The MOHAWK Surveillance System

(C) The MOHAWK Surveillance System, which had been in the field since September 1961, was a multipurpose manned aerial surveillance system. The aircraft in this system was an OV-1, which was an all-metal, mid-wing monoplane with two Lycoming T53 engines, and Hamilton-Standard reversible propellers. The remainder of the integrated system consisted of photographic and electronic sensors, data links, and ground support equipment. The mission of

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Memo for Record: Reordering of the Cheyenne RDT&E Program,
10 June 1969.

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76
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the system, which was the provision of day and night battlefield intelligence to field commanders by the use of airborne sensors, necessitated the incorporation of several features in the design of the MOHAWK aircraft. It was capable of operation from small fields and unimproved runways, in the forward area with little support materiel and few personnel. It involved four models: the OV-1A, visual and photographic system; the OV-1B, with a side looking airborne radar (SLAR)/photographic system; the OV-1C, with an infrared (IR)/photographic system; and the OV-1D, with either an infrared or SLAR/photographic system. The OV-1D did this by means of palletizing improved SLAR and IR sensors to facilitate installation of either system within 60 minutes. In Fiscal Year 1969, AMC procured and deployed 316 MOHAWK aircraft in the continental United States (CONUS), Europe, Alaska, Korea, and Vietnam.

The Manned Aerial Vehicle for Surveillance (MAVS)

(C) The MAVS system had as its goal the development of a more efficient intelligence collection system. A developing project, MAVS attempted to anticipate future military hardware developments by means of direct and remote gathering of information and intelligence, target acquisition, damage assessment and survey. To facilitate this, designers included on the aircraft broad area coverage search sensors, high-resolution local area identification sensors, and target location equipment. They felt that such equipment should provide improved target background discrimination. This was to be accomplished by the proper combination of secure, low detectability sensors, such as visual observation, aerial camera,

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laser, infrared, low light level television (LLLTV) moving target indicators (MTI) radar, electronic or electromagnetic, and other like devices. The completed system would also provide computer controlled target location equipment, have a sensor for radiological detection, and be capable of night or day virtually all-weather and visibility operations from dispersed, forward tactical locations, in order to provide intelligence and target acquisition data to on-line combat commanders. Scheduled to begin operations in Fiscal Year 1980, the eventual goals of the MAVS inventory was to replace the MOHAWK system.

MOHAWK Modernization and Product Improvement

(U) The MOHAWK Modernization Program for the OV-1B and C, authorized in Fiscal Year 1965, was completed in Fiscal Year 1969 with the delivery of the last aircraft by the Grumman Aircraft Engineering Corporation in December 1968. This program consisted of the modification of aircraft; the retrofit of IR systems into the OV-1C aircraft and of the SLAR system into OV-1B aircraft; the conversion of T53-L3 engines to T53-L7; and other changes to general and particular communication and navigation equipment. The total cost of the program was \$62.2 million.

(U) The MOHAWK Product Improvement Program continued throughout the fiscal year. The purpose of this program was the provision of OV-1D aircraft to the Army as an interim measure between the existing OV-1 and the MAVS system. The first phase of this program incorporated the following improvements in Fiscal Year 1968 OV-1C

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procured aircraft: longer wing [REDACTED] llation of T53-L15 engines; reconfiguration of the cockpit panel; air conditioning of the cockpit; and the installation of several special items, including the KA-60 forward looking panoramic camera, the KA-76 vertical/oblique camera, the AN/AYA-5 Data Annotation System for cameras, IR and SLAR sensor systems and the LS-59 Electronic Flasher. The second phase of the program, which started in Fiscal Year 1967, resulted in the Fiscal Year 1969 pre-production of four OV-1D's from the Fiscal Year 1967 procurement of OV-1 aircraft. The aircraft had interchangeable improved IR and SLAR sensor systems, an additional panoramic photo capability, an inertial navigation system, an improved communication package, and electronic warfare equipment. The first of the pre-production OV-1D aircraft was delivered on schedule to the U.S. Army Test and Equipment Command (TECOM) on 18 June 1969 for an engineering test/service test (ET/ST), which was to be completed in October 1970. The project manager's office incorporated these improvements on 37 OV-1D aircraft that were procured in Fiscal Year 1968 Add-On and Fiscal Year 1969.

Iroquois

(U) The Iroquois Project, in addition to its former mission of the development and the production of the UH-1 (Huey) and the AH-1 (Hueycobra) Helicopter series, at the onset of Fiscal Year 1969 assumed the responsibility for Integrated Weapons Support Manage-

10

MASTS Historical Summary, FY 1969, pp. 1-10.

UNCLASSIFIED

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ment. Both the Huey and the Hueycobra were single-rotor, turbine-powered helicopters that were utilized for training and combat operations and for low-level, close-armed support of tactical troop missions. Featuring an all-weather capability, these helicopters could carry troops and accomplish escort missions. These two members of the Iroquois family thus provided the Army in SEA with an ability to achieve its goal for the establishment of a high mobility field force.

(C) The Huey, the older of the two helicopters, had been operational since 1959, and it saw Vietnam action early. At the end of Fiscal Year 1969, 2,169 UH-1's were in Vietnam, constituting about 80 percent of all Army aircraft in that operational area. Hueys averaged more than 60 hours flying time per month per helicopter and constantly maintained a high availability rate. Various models of the Huey flew over two and one-half million hours in Fiscal Year 1969, more than double their Fiscal Year 1968 total, in the performance of such tasks as medical evacuation and supply and personnel transport.

(C) Despite its continuing importance, the Huey was subject to eventual replacement by modernization that took form as the Hueycobra. Faster, more maneuverable, and having greater firepower than the Huey, the Hueycobra was first deployed in Vietnam in August 1967. As of 30 June 1969, 442 Hueycobra's were in Vietnam, equipped to carry, in various combination, machineguns, rockets, and grenade launchers and intended for use as attack helicopters.

The Hueycobras flew over 270,000 hours during the fiscal year.

UNCLASSIFIED

80
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(U) On 26 September 1968, the Assistant Secretary of Defense (I&L) assigned the executive service responsibility for program management of the H-1 aircraft T-53 engine programs to the Army; the Army in turn assigned the AMC management responsibility for these programs on 11 October 1968; and AMC delegated and divided this responsibility. The Iroquois Project Manager received the H-1 program and the Project Manager for Selected Turbine Engine got the T-53 engine program.

(U) The H-1 Integrated Weapon Support Management Program also received much AMC attention in Fiscal Year 1969. On 11 October 1968, AMC submitted an outline plan for the implementation of that program by 30 June 1969. As a consequence of this submission, task groups, composed of representatives of the Army, the Air Force Logistics Command, and the Naval Materiel Command met to establish the Joint Operating Procedures (JOP's) necessary for the implementation of the H-1 Program. The program, however, met a critical delay which was brought about by the failure to participate in these proceedings on the part of the Air Force Systems Command. According to the provisions of the Army-Navy-Air Force Agreement on the Management of Government System/Projects, the Air Force Systems Command had to participate in the joint development of JOP's required for the implementation of Joint/Service Projects. The Air Force Systems Command not only failed to join in the preparation of the JOP's, but did not respond to written requests for comments on the JOP's. Despite this handicap, however, the Deputy Commanding General, AMC, did approve a draft project charter for the H-1

Project Manager and on 7 November 1968 forwarded it for comments and concurrences to the Commanders of the Air Force Logistical Command, the Air Force Systems Command, and the Naval Materiel Command. In all of these actions the Army, acting through AMC, became DOD's executive agent for all three military services in this program, a fact of added importance inasmuch as this was the first such integrated system assignment for the Army.

(U) The Army also managed DOD's foreign sales and agreements in regard to the Huey. The United States and the Federal Republic of Germany (FRG) continued to follow the agreements in a 30 May 1965 Memorandum of Understanding, in which both parties agreed to the coproduction of 406 UH-1D/H helicopters, including spare parts. In Fiscal Year 1969 the Bell Helicopter Company completed Phase III of the program (302 UH-1D aircraft) on schedule with 165 helicopters completed and delivered to the FRG. At the same time, 184 T53-L-13 engines, assembled with parts sets that the Lycoming Division, AVCO Corporation had shipped, were delivered. By 31 December 1969 expenditures for the total FRG Program had totaled more than \$112 million, with over \$44 million spent in the first half of the fiscal year.

(U) On 8 August 1969, the Canadian government concluded an agreement with the United States Army for the procurement of 50 CUH-1N helicopters that were to be delivered in the Calendar Year 71-72 time frame. The CUH-1N was a twin engine UH-1 helicopter powered by a Canadian Pratt and Whitney twin-pack engine,

designated the T400-CP-400. The Canadian government was to [REDACTED] furnish this engine directly to the BHC, the prime contractor.

(U) A notable feature of these negotiations was the inter-service cooperation between the Army and the Air Force. The U.S. Army acted as the total program manager, while the U.S. Air Force (USAF) provided the supporting technical and necessary UH-1N data requirements. The two services initiated the first actual test of the UH-1 Integrated Weapon Support Management Program, as they combined their engineering, logistics, and procurement management talents in conjunction with a prime contractor to give service to a foreign government.

(U) The United States also delivered, and contracted to deliver, helicopters to several other foreign customers. During the fiscal year, 140 UH-1B/D/H's were transferred, as authorized under the International Logistics Programs. These craft went to nine countries. Those sent by country ranged from one to Argentina, to 76 to Vietnam, the largest number. Two of the helicopters were UH-1D's, the remainder were UH-1H's. In addition, the United States made arrangements for the delivery of 17 new cases in the Fiscal Year 1970 to Fiscal Year 1972 time frames, bringing the total to be delivered in that time period to 181. All, except 50 which were to be sold to Canada, were UH-1H's; the Canadians were to buy UH-1N's. The United States also intended to solicit the sales of 127 more helicopters to 11 foreign nations. Most of the aircraft involved were UH-1H's, with the exception of 21 AH-1G's.

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(U) In each of these programs, the U.S. Government gave initial support, which consisted of airframe and engine spare parts, tools, spare engines, and some tool sets that varied according to the echelon of maintenance to be done in-country. The United States normally furnished some degree of follow-on support for those aircraft that had been delivered before Fiscal Year 1969. The United States was able to supply most of the needs of these previous agreements, except for a few very critical engine¹¹ items.

(C) Aircraft Weaponization

(U) The responsibilities of the Aircraft Weaponization Project Manager in Fiscal Year 1969 consisted of the provision of all armament subsystems and related equipment for Army aircraft. This involved exploratory, advanced, and engineering development production and the provision of logistical support for many types of weapon subsystems and materiel items, including such items as rockets, missile grenade launchers, aerial dispensers, and similar munitions, as well as the installation of fire control systems in all kinds of Army aircraft.

(C) Because of the demands of the Vietnam conflict, much attention was devoted to the development and procurement of items for that war. The expedited nonstandard urgent requirements for equipment (ENSURE) provision was the apparatus for the request and

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delivery of urgently needed materiel for Southeast Asia (SEA), and under its terms several types of items were fielded, or were in various stages of development in that fiscal year. These items included the XM25 bomb, with dispenser; an XM596 Airburst Fuze for the 40mm M384 round; a Caliber 0.50 XM59 pintle-mounted gun subsystem; an XM35 20mm Gun Subsystem; and an XM76 Antioscillation Sight.

(C) Despite this Vietnam output, the Office made progress in the development of several items in the exploratory, advanced, and engineering areas. Some \$34 million went to these items, which included: a Cobra Night Sight, which was intended to give the AH-1G helicopter a night fire control capability with no reduction in the existing Cobra firepower; improved electro-optical seekers, for trackerheads in missiles; an XM8 40mm grenade subsystem for the OH-6; a Fuel Air Explosive (FAE) munition, to clear helicopter landing zones of mines and booby traps; a 30mm XM140 Gun for the UH-1; a Multiweapon Fire Control system for the UH-1B and the AH-1G, which consisted of a computer, a stabilized optical sight, a laser ruby rangefinder, and a 3-stage image intensifier; a Selective Effects Armament Subsystem (SEAS), which was designed to replace the 2.75-inch rocket for direct fire close support missions by the AH-56A and the AH-1G; and a SEA Multi-Sensor Armament System for Hueycobra (SMASH). SMASH was to be a hunter killer gunship that carried special sensors for the night-time task and finding and destroying targets of opportunity, such as trucks and personnel. Important SMASH features included a

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clutter filtered doppler radar for the detection of slowly moving targets at standoff ranges up to 6,000 meters for personnel and 16 kilometers for trucks, and a forward looking infrared (FLIR) fire control sensor for the close-in recognition and tracking of targets during the firing run. SMASH's armament was to consist of the XM28 flexible turret, and either the XM35 fixed forward firing 20mm gun system or the 19 tube 2.75-inch rocket launcher.

(U) The procurement and production portion of the Fiscal Year 1969 Aircraft Weaponization program cost \$33.1 million. The results of this expenditure included the distribution of several thousand aircraft armament subsystems in Vietnam. Items of note among these subsystems were over 500 XM18E1, 7.62mm Machinegun Armament Pods; 443 M-23 Armament Subsystems, Door Mounted, for the UH-1D; and 84 XM-28 Armament Subsystems, which comprised a 7.62mm Machinegun and a 40mm Grenade Launcher.

(U) The total distribution of the 28 aircraft armament subsystems presented an interesting and significant indication of the great extent to which the Vietnam conflict had hobbled the Nation's global war capability. The roots of this problem lay in the relative importance of the systems themselves. Using Vietnam as a basis, Army planners had envisioned and schematized a rebuilt Army that was to be highly mobile and in possession of a great deal of firepower. The helicopter was to be an important tactical feature of this new force, and developers had predicated the greater firepower upon the introduction of rapid-fire weapons

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into the workhorse helicopters themselves. Thus the mobility and firepower of the future Army was largely concentrated into one package and helicopter armament assumed an added importance.

(C) Such military innovations invariably attract attention, and it would seem to be a likely assumption that potentially hostile powers at several places on the globe would take notice of these affairs and that they would plan to build a similar force for their own purposes. It would, therefore, be of paramount importance for the Nation to deploy the bulk of these forces in potentially troubled areas, such as upon the European continent. This was not the situation, however, for not only did Vietnam already have the bulk of the aircraft armament subsystems, 6,639, or about 66 percent, of 10,062 total subsystems, but it also took an increasingly greater portion of recently produced subsystems. Eighteen-hundred and forty-five, or about 69 percent, of the 2,687 items that underwent distribution in Fiscal Year 1969 went to USARV. Moreover, the older systems, such as the M-2 of 1963 vintage, were the ones that were in CONUS and Europe. Meanwhile, the newer systems, such as the M-23 of 1966 origin, went mainly to Vietnam; 2,402, or about 82 percent, of 2,917 M-23's went to Vietnam.¹²

(C) CHAPARRAL-VULCAN Air Defense System

(U) The CHAPARRAL-VULCAN Air Defense System, known by this

12

Aircraft Weaponization Annual Summary, FY 1969, pp. 1-5.1.

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name until Fiscal Year 1968, was a highly mobile defense system for use against low altitude aerial attacks in forward battle areas. The Project Manager of this office bore the responsibility for the definition, the development, the fielding, and the support of the Air Defense System which comprised the chief might of the Divisional Composite Air Defense Battalion and other defense applications. The major materiel items within the CHAPARRAL-VULCAN consisted of the CHAPARRAL surface-to-air guided missile system, the self-propelled and the towed configurations of the companion M61AL VULCAN 20mm gun and the Forward Area Alerting Radar (FAAR).

(C) In Fiscal Year 1969, the CHAPARRAL-VULCAN office rapidly began to approach the production and delivery phase. This was especially true of both versions of the VULCAN. The VULCAN, SP, for example, completed the U.S. Continental Army Command (CONARC) new equipment training and completed Fiscal Year 1966 PEMA production contract deliveries in July 1968. By October of that year, a combat evaluation test team had arrived in Vietnam to undertake, in the following month, a DA-approved evaluation test plan. The towed VULCAN, also completed some CONARC evaluation tests in July 1968, but it did not conclude all tests, including environmental qualification, until May 1969. Evaluation tests of the CHAPARRAL were completed in that same month, and by June 1969 new equipment materiel introductory letters had been distributed. Finally, on environmental tests the FAAR were concluded at the same time as those on CHAPARRAL, and in November 1968 a Fiscal

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Year 1969 production letter contract was awarded.

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(C) AMC, however, eliminated the towed CHAPARRAL program. On 13 September 1968, The Office, Chief of Research and Development (OCD), advised AMC to begin plans for the development of the towed CHAPARRAL in Fiscal Year 1969. On 26 September 1968, DA provided OCD with the RDTE program for this weapon. It provided for the initiation of its development in Fiscal Year 1969. On 2-3 April 1969, however, at the Second Annual Air Defense Review, GEN Bruce N. Palmer, Vice Chief of Staff of the Army, declared that no valid requirement existed for a towed CHAPARRAL and he agreed to quietly allow the program to lapse.

(C) Main Battle Tank

(C) The Main Battle Tank (MBT-70) Project, a US/FRG (United States/Federal Republic of Germany) joint effort, underwent several personnel and organizational changes in Fiscal Year 1969. On 1 July 1968, BG B. R. Luczak succeeded MG Edwin H. Burba as the U.S. Program/Project Manager for the MBT-70. On 1 October 1968, BG Hans Eberhard assumed the position as the German Program Manager from BG Dr. Helmut Schoenefeld. In a reorganization of the Program Manager's office on 1 May 1969, three new divisions were added. The new divisions were the Technical Coordination Division, which was formerly a branch; the Review and Analysis Division, which was a combination of the former Special Projects Branch and the Review

13

CHAPARRAL-VULCAN Annual Historical Summary, FY 1969, pp. 1,3,12,22-25.

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and Analysis Branch; and the Plans and Operations Division, which was a combination of the Procurement and Production Division, the Plans Branch, and the Interpreter/Translator Office. In addition, on 1 March 1969, the AMC Main Battle Tank Engineering Agency joined with the U.S. Element of the Joint Engineering Agency. One result of this latter step was the consolidation of all of the elements of the MBT-70 Program in the Detroit area, including the Joint Design Team, which was relocated in the Universal City Professional Building in Warren, Michigan.

(U) In Fiscal Year 1969, a portion of the work on the MBT-70 was of a remedial nature, because of difficulties with the design and engineering of the vehicle. Other problem areas were the engine, suspension and transmission systems, and most importantly, the 152mm gun launcher. Engineers improved the 152mm XM578 kinetic energy round and the XM150 gun/launcher so that they both exceeded the accuracy and penetration design objectives. The other problems were not as easily resolved. In December 1968, the MBT-70 Office decided, upon the recommendations of the Joint Engine Evaluation Panel, to use the German Daimler-Benz engine model 873 for the second generation pilot models and to terminate the U.S. development of the CAE AVCR-1100 engine. The United States also decided to use the Lycoming turbine engine in the production tank, if and when it became available. In January 1969, the two powers signed a Memorandum of Understanding concerning systems integration. the United States became responsible for the turret and the FRG became responsible for the chassis. The powers did

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not, though, reach an agreement on the selection of the suspension system for the 2d generation pilots, despite the successful completion of a 6,000 mile test of the National Waterlift suspension system.

(U) The United States and the FRG compromised on the weight problem. The United States agreed to a 48.5 metric ton limit, a 1.1 metric ton overweight, as the West Germans wished, and the West Germans acceded to the greater ballistic protection that the United States had desired. The two nations retained all interfaces and reached an agreement on most of the hardware items and managerial procedures in the APE and system integration phases. Yet, in order to achieve this concord, the United States had to accept a larger share of the software responsibilities. The United States faced a request from the FRG for its reaction to an FRG-proposed new tank configuration that was fundamentally different from the MBT-70.

(C) The new tank's changes included the return of the driver to the hull and the replacement of the automatic loader, and FRG development responsibility, with a loader assist mechanism and a fourth man, and the elimination of the secondary weapon. The West Germans argued that these new designs would solve the combustible case loader interface problem and cause lower production costs. The initial reaction by the United States was negative. This country believed that the proposal would produce a 3 to 4 year slippage, waste much money already spent, and reduce capabilities. The U.S. Program Manager stated that he considered the

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plan too drastic, but agreed to obtain the U.S. users reaction. He also advised the FRG of the requirement for an austere U.S. configuration that was to be available before December 1969.

(U) As of June 1969, the FRG tank proposal had not been resolved. At the 28th Program Management Board meeting, held on 17-19 June in Munich, Germany, the PMB was unable to decide that issue or the earlier one of the selection of the suspension system. The PMB solved this latter problem by giving it to the Acting Assistant Secretary of the Army, Research and Development, and the Chief, Division T, FMOD, for resolution. Thus, the problem of the suspension system was retained in the international area. In regard to the FRG-proposed tank concept, the West German Program Manager offered a solution that called for the continuation of the joint program with the United States to proceed with the existing design and the FRG to proceed with the redesigned version. The two nations were to treat the costs of both programs as part of the joint program. The U.S. Program Manager's reaction to this proposal was negative; he informed the FRG that the United States was not prepared to support two tank development programs.

(U) Despite the continuing uncertainty of the status of the MBT-70, the project followed a plan that would eventually produce a whole family of MBT-70 vehicles. The two basic units of this family consisted of a MBT (XM-70 and MBT-70) and a Heavy Equipment Transporter, HET-70 (truck tractor, XM-746 and semi-trailer, XM-747). The secondary members of this family comprised a recovery

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vehicle (RV: XM-742), an armored vehicle launched bridge (launcher XM-743 and bridge XM-744), a combat engineers vehicle (XM-745), and an armored combat flame vehicle. The US/FRG HET-70 became available for evaluation tests during Fiscal Year 1969 and underwent a special test in Tennessee to see how well typical highway bridges could bear its weight. In July 1968, the Assistant Chief of Staff for Force Development (ACSFOR) approved type classification, limited production for 200 semitrailers, XM-747, to meet an urgent SEA requirement. Chrysler Corporation won a letter contract on 17 September 1968 to produce these semi-trailers, with the first delivery to be made in August 1969.

(U) In Fiscal Year 1969, other countries expressed an interest in the MBT-70 Program. Representatives of the MBT-70 Project gave several briefings during the fiscal year, one to the Government of the Netherlands, at The Hague in September 1968, that concerned the user philosophy, general technical characteristics of the tank, and the current status of the MBT Program; one to a military delegation from Italy, also in September 1968, and an unclassified briefing about the HET; and, in November 1968, one to a British delegation, which was a technical briefing on the status of the MBT-70 Program. The United Kingdom (UK) indicated that due to financial reasons, they would not purchase the MBT-70. After this briefing, the program managers decided to cease briefing interested nations on an individual basis and, instead, to conduct an annual briefing for North Atlantic Treaty Organization (NATO) countries. In June 1969, the first NATO briefing was held. At this briefing

the PMB provided NATO members with background information on, and the current status of, various aspects of the US/FRG Cooperative Tank Development Program.

(U) Amphibians and Watercraft

Late in Fiscal Year 1969, the Project Manager's Office for Amphibians and Watercraft began operations as a chartered organization that grew out of the Office of Project Manager, Amphibious Lighters, established 17 May 1965. With the new designation (it had been previously known as the Beach Discharge and Amphibious Lighters Project Management Office), the Office also gained additional responsibilities. These responsibilities consisted of development, procurement, distribution, maintenance, and modification of all U.S. Army Watercraft except those under specific assignment to the U.S. Corps of Engineers.

The amphibious lighter family included the 5-ton, LARC-V, the 15-ton, LARC-XV, the 60-ton LARC-LX, and the Beach Discharge Lighter (BDL). All of the LARC (lighter amphibious resupply cargo) craft were amphibious, self-propelled diesel lighters, whose most important common characteristic was their ability to navigate in either deep or shallow water and on land, including improved or unimproved terrain. The BDL was a modified, self-contained seagoing

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MBT Annual Historical Summary, FY 1969, pp. 1-7, 11-13.

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(1) AMC Charter, 15 Jan 1969. (2) AMC GO 41, 12 Mar 1969.

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AMC GO 42, 13 July 1965.

vessel which possessed a capability for union with Fast Deployment Logistical (FDL) Ships and with other ships. It was designed to support isolated combat operations and deliver supplies to beach-heads.

The BDL's and the LARC's were designed to function in unison. The BDL's began a supply operation by depositing a cargo ashore, at which juncture the amphibious vehicles loaded the cargo and delivered it to forward areas. By so providing flexibility to supply line terminals by means of direct ship-to-shore user service, the BDL-LARC combination eliminated beachhead storage stockpiles that were formerly exposed to enemy attacks, freed men from previous beachhead storage activities for other uses, and reduced the amounts of materials that were once necessary in the early stages of Logistical Over-the-Shore (LOTS) operations.

Much of the office's production efforts in Fiscal Year 1969 focused on product improvement and fielding the latest amphibian, the LARC-XV. Using field experience, engineering analysis, and tests to produce the latest approved configuration, as well as an assigned engineer from the contracting officer in order to assure technical proficiency and compliance with the most recent model modifications, the office conducted such an improvement program at Rio Vista in order to preclude such field difficulties as those that
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the LARC-V had experienced. The office made the final delivery for the production contract for the LARC-XV early in Fiscal Year 1969.

17

MECOM ltr, AMSME-PDC-A, 31 July 1968.

The current production of amphibians was hampered by the progress of a study that would, when completed, recommend new types and designs of craft based upon operational concepts for Fiscal Year 1974. Meanwhile, to prevent a future block obsolescence of the existing watercraft fleet, AMC required a revised 5-year program that would meet current and projected requirements. This required consideration of two major factors—the CDC Fiscal Year 1969 Trans-Hydro Study and anticipated budgeting restrictions. This plan called for a complete renewal of the fleet, by Fiscal Year 1974, using current designs at a cost of \$285 million. As constituted, the office felt that this plan was unrealistic, and believed that, with few exceptions, there were sufficient numbers of existing watercraft of various designs to meet new requirements without such drastic alterations and innovations. The office therefore proposed the immediate procurement of those craft in which it was deficient, namely, LCU's, LCM-8's, and Y-Tankers, and called for modernization changes on four designs in order to alleviate support problems. These modifications were on the 60-Ton Crane, the 100-Ton Crane, the Refrigeration Barge, and the Fuel Change. The office predicted that its program would reduce costs to \$69.1 million and, if effected in conjunction with an intensive supply and maintenance management program, would enable this equipment to perform until it could be replaced by more modern equipment that would result from the implementation of development recommendations arising from the Trans-Hydro Study.

MALLARD

The MALLARD Project was an international research and development (R&D) endeavor by the United States, the United Kingdom, Canada, and Australia, for development and procurement of improved tactical communications systems that would be common to the Armies, the Air Forces, and the Navies of all four powers. The purpose of the systems, after final installation about 1985, was to provide a military communications network that would be comparable to automated commercial systems, featuring such items and characteristics as switching facilities, trunk lines, local distribution, and the ability to admit mobile users. By Fiscal Year 1969, the 4 governments had completed and approved operational and technical requirements, a development plan, and the recommendations to proceed with the establishment of a total feasibility approach. Fiscal Year 1969 marked the initiation of contract formulation activities, which were scheduled to continue until the commencement of contract definition in the 4th quarter of Fiscal Year 1971.

Operating under the guidance of a Memorandum of Understanding executed by the American, British, Canadian and Australian (ABCA) countries in 1967, the MALLARD organization consisted of a Program Management Board (PMB), a Joint Engineering Agency (JEA), and several national program/project managers. MG Paul A. Feyereisen commanded the U.S. program/project until 25 June 1969 when BG Harold W. Rice replaced him. The U.S. program/project manager had many important duties, which included the supervision of the

life-cycle management of MALLARD communications in accordance with DOD and DA orders, and reporting his actions in these matters to the Army Chief of Staff and the representation of the United States at the international level as the United States member of the international MALLARD PMB. In addition, the U.S. program/project manager presided over the development of the MALLARD Joint Service Charter and the MALLARD Development Concept Paper that provided a basis for further multi-service cooperation and DOD concern with the project. In May 1969, the program/project manager gained an added responsibility. In that month, the Departments of the Army, Navy, and Air Force signed a Joint Project Manager Charter, by which the Army was designated the executive service for the MALLARD Project, with the Army, Navy, Air Force, and Marine Corps acting as the participating services.

The activities of the MALLARD Project in Fiscal Year 1969 were an extension of those of Fiscal Year 1968, as they continued to concentrate on the expansion of the international management organization into an effective production unit. These activities were divided into phases and during Fiscal Year 1969, the need to plan, direct, control, and evaluate the Phase 1 system study activities, as well as the demand to make preparations for Phase 2A activities for the Fiscal Year 1970-71 period, occupied all of the energies of the project organization. The chief results of these activities included the approval by the Deputy Secretary of Defense of the MALLARD Development Concept Paper on 25 July 1968; the approval by AMC on 12 March 1969 of a 27 January 1969 revision of

the MALLARD Technical Development Plan (TDP); and the preparation by the MALLARD Project for the submission of its first
19
Advanced Development Plans.

The Fiscal Year 1969 released program for the MALLARD Project was \$8 million, over \$2 million more than the Fiscal Year 1968 total. Of the Fiscal Year 1969 monies, about \$2.6 million was channeled into systems studies, approximately \$3 million into PMO/JEA support, more than \$1.1 million into the ECOM laboratories, and the remainder, \$593,000 and \$650,000, respectively, into technique support efforts and functional models/simulations. This U.S. fund release accounted for 62 percent of the international program. Of the remainder, the UK contributed 30 percent, Canada 5 percent, and Australia 3 percent. These costs nearly coincided
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with the costs of procurement undertaken by each nation.

Night Vision

The Night Vision Project Manager's Office had, since its 1965 beginning, the mission of the provision of night vision equipment to the soldier in the field. Examples of production and procurement included such items as night vision devices, weapons sights, Xenon searchlights, and observation and fire control equipment for combat vehicles. In order to acquire such items, the office conducted studies in the areas of image

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AMCRD-PT, ltr, 18 Apr 1969, subj: Review and Updating of TDP's and Preparation of ADP's and SDP's.

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Project MALLARD Historical Summary, FY 1969, pp. 1-4, 24.

intensification, active IR, and IR systems and components.

Fiscal Year 1969 expenditures for the Office of the PM for Night Vision were greater than those of the previous fiscal year, they increased from approximately \$83.9 million to approximately \$88.9 million. Of this latter amount, approximately \$32 million came from RDTE funds and the remainder, some \$56.9 million, from PEMA sources. This money served to finance and manage 3 DA projects that consisted of 13 specific RDTE tasks and 7 PEMA line items. This RDTE program included six tasks under Project IX664714-D561 (viewing and illumination) in which the Office and the Project Manager, SEA NITEOPS, shared joint responsibilities. The office completed all of the PEMA procurement actions in Fiscal Year 1969 with the exception of portions of two items, which were excepted to be completed during the 1st quarter of Fiscal Year 1970. On 1 July 1968, the office passed the commodity management responsibility for 4 items to 2 AMC major subordinate commands. The Commanding General, ECOM, acquired the Weapon Sight, IR, AN/PAS-4, and AN/PAS-4a; the Metascope Assembly, Infrared, AN/PAS-6; and the Light, Glide Angle, Airport Approach. The Commanding General, WECOM, took the Binocular, M-18, Handheld. In the 2d half of Fiscal Year 1969 the office distributed several new equipment items, most of which went to Vietnam. In the 3d quarter, the office introduced 60 1KW Searchlights, AN/VSS-3, in order to support evaluation of the Sheridan M551, Armored Reconnaissance/Airborne Assault Vehicle (AR/AAV). Also introduced were 9 1KW

Searchlights into Europe in the 4th quarter of Fiscal Year 1969 to support evaluation of the M551. In addition, the Office distributed 8 active Lightweight Airborne Searchlights into Vietnam²¹ in June 1969 under ENSURE 260.

SATCOM

The U.S. Army Satellite Communications (SATCOM) Agency at Fort Monmouth, New Jersey, had acted, since its inception in 1962, as the focal point for all the planning, direction, and control of tasks and resources in the provision of ground equipment and systems for satellite communications. The Project Manager, SATCOM, functioned as the Army's agent for all international military satellite communications systems and represented the Army in those special DOD satellite projects that did not specifically involve communications. The SATCOM Project Manager also bore the complete life cycle responsibility for the military satellite communications programs, including those with tri-service and international connections.

The activities of the SATCOM Agency in Fiscal Year 1969 consisted of five major programs, three of which were tri-service in nature and two were international. These programs were the Defense Satellite Communications Program (DSCP); Phase II-DSCP; the Tactical Satellite Communications (TACSATCOM) Program; the NATO TACSATCOM Cooperative R&D Program; and the Navigational Satellite Program.

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Night Vision Historical Summary, FY 1969, pp. 1-5.

The programs enabled SATCOM to develop and build communications terminals that functioned around the earth. These terminals, operating in conjunction with two satellite communications systems, swiftly carried DOD messages 24 hours a day.

In order to properly implement these five programs, the agency operated as an integrated facility for engineering, test bed activities, and R&D test and evaluation and systems operations. With the guidelines of increased reliability and decreased size, weight, and complexity, the agency used its headquarters base and the four field stations to develop 10 types of terminals for satellite communications. The terminals included large fixed stations with 60-foot diameter antennas; 15, 30, and 40 foot antenna transportable configurations; new cloverleaf design antennas; and experimental jeep-mounted equipment.

By the beginning of Fiscal Year 1969 SATCOM had completed the development and the deployment of the global Defense Satellite Communications System (DSCS) with its Air Force satellites and with the SATCOM-developed Army ground stations. These terminals formed a worldwide satellite communications system that transported DOD messages, words, and pictures on a 24-hour basis. Fiscal Year 1969 witnessed several improvements of the system. The AN/MS-46 terminals, for example, underwent an operationally required increase in voice capacity from five voice channels to 11 voice channels, an alteration that was completed by December 1968. The interim automated computer

program, which was developed by Mellonics for SATCOM, was delivered to the Satellite Communications Control Facility at DCA headquarters in March 1969. The program included long-term scheduling for 30 satellites, 100 terminals, and 50 links.

With the completion of Phase I of the DSCS, SATCOM, with the approval of the Secretary of Defense, began Phase II of the DSCS program and so entered the second stage in strategic global satellite communications. Most of the agency's efforts in this program centered around studies that led to the engineering definition of the ground environment and the determination of the technical and operational characteristics. The agency decided that the advanced system would consist of the existing ground assets, modified to operate with the Phase II satellite, and the development of additional ground terminals. In April 1969, SATCOM released the Request for Proposals for the new Phase II terminals, including both the medium and the heavy transportable types. The agency received the proposals in July 1969 and was evaluating them at that time.

Another program for which the SATCOM Agency bore Army action responsibility was the TACSATCOM Program, which had as its mission the provision of reliable, flexible tactical satellite communications terminals for combat forces. The Tactical Satellite Executive Steering Group (TSEG), which consisted of Army, Navy, Air Force, and Marine Corps representatives, directed the program. For this program the Army (SATCOM Agency) acted as the "lead

service" for the procurement of all SHF tactical terminals, with the Radio Corporation of America as the prime contractor. The Air Force's Electronic Systems Division acted as the "lead service" for the procurement of all UHF tactical terminals, with the Collins Radio Company as the prime contractor. The agency's activities concerning the TACSATCOM Program focused on two activities. One was Project Experimental Army Satellite Tactical Terminal (EASTT) that utilized experimental communications satellites that the Massachusetts Institute of Technology's Lincoln Laboratory had developed for the Air Force. The second involved a joint Army, Air Force, Navy, and Marine attempt to demonstrate the feasibility of using satellite communications for tactical communications purposes (TACSAT 1).

At the beginning of Fiscal Year 1969, the agency had designed and directed, and ECOM had built, five UHF land terminals, which consisted of two jeep installations, two 3/4-ton shelter terminals, and one 26-foot van terminal. These terminals, operating in conjunction with an orbiting LES-5, comprised the first experimental LES-5 voice network. Using this network as a base, the agency began to modify it for an LES-6 system. In September 1968, a TITAN III C launched the Air Force/Lincoln Laboratory LES-6 satellite, a synchronous, UHF satellite that was designed to test an experimental joint service tactical satellite communications system. The 26-foot van EASTT terminal was used in a test series of this new network, and each of the services had an allocated time to conduct performance tests.

Further developments in the LES-6 system in Fiscal Year 1969 methodically unfolded, revealing the improvement and the extension of the combined LES-5 and LES-6 networks, the combination of which became known as the TACSATCOM 1 system, or TACSAT. In November 1968, the SATCOM Field Station No. 1 at Lakehurst Naval Air Station was designated as the staging area for TACSAT and new UHF and SHF tactical terminals were located there. In January 1969, the Collins Company gave the Army its first UHF TACSATCOM terminals—two Team Packs and one Alert Receiver. In February 1969, TACSATCOM received its first terminal and launched its first satellite—the TACSAT 1, a 1,600 pound, UHF/SHF satellite. In the remaining months, the TACSATCOM network took more deliveries, underwent extensive tests, and made several impressive demonstrations of its capabilities, most notably in its aid in the missions of Apollos 10 and 11. As of June 1969, the Army had received all of its UHF terminals (10) and delivery of the 8 SHF terminals was nearing completion.

SATCOM also had an important rôle in the international communications effort, as evidenced by the responsibility it had in Fiscal Year 1969 in US/NATO efforts to develop tactical satellite communications. Originating in 1966, this US/NATO effort evolved under the joint sponsorship of the NATO Army Armaments Group (NAAG) and DOD, with the Army functioning as the "lead service" for the development and the coordination of the cooperative TACSATCOM R&D program. SATCOM was responsible for ground based terminals and the communications test programs; the Air Force had the responsibility for satellite and airborne terminals; and the Navy had the responsibility for shipboard terminals.

Most agency activity within this program concerned the completion of its commitment to build four NATO terminals—two for Canada, one for Italy, and one for Belgium. In October 1968 SATCOM concluded this task by the construction of the two remaining terminals, each mounted in a 3/4-ton shelter. The Italian terminal was shipped to Livorno on 10 October 1968. The Belgium terminal was shipped in early November. For the purpose of training native personnel in the operation and maintenance of the equipment, SATCOM personnel accompanied each shipment.

Using test plants that were prepared jointly by the NATO group, SATCOM and other participants in the program studied the aspects of the LES-6 system to confirm the technical and operational feasibility of the widespread allied application of such a system. The success of the LES-5 tests and the mutually beneficial results led directly to further cooperative experimentation. The agency itself believed that a complete evaluation program would lead to the definition and adoption of a system that could be used to satisfy particular NATO tactical communications needs.

The final program on the Fiscal Year 1969 SATCOM agenda was the navigational satellite program. Under OCRD direction, SATCOM engaged in the development of navigation concepts that were designed to satisfy Army location and navigation requirements. The SATCOM effort primarily consisted of providing a DA representative and spokesman to the Air Force Study and Management Group. The mission of this spokesman was to insure that Army efforts were properly

interpreted and given adequate response in the joint service
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effort.

(S) Other Project Managers

Project Deseret

(U) The Deseret Test Center (DTC), which DA established at Fort Douglas, Utah, was a special project for which the AMC provided direction. 23 Under the command of COL Robert Muldrow, U.S. Air Force, who assumed command from BG John G. Appel, U.S. Army, on 23 June 1969, the center operated with joint staffing from the Departments of the Army, the Air Force, and the Marine Corps. The purpose of the center was to coordinate all DOD and Public Health CB field testing under a single management group within DA. In order to achieve this purpose, DA, with the approval of ACSFOR, allocated the Center 1,443 personnel spaces, of which 344 were military and 1,099 were civilian. RDTE and other funding for DTC activities amounted to about \$43.2 million. Total personnel increases and total funding represented sharp increases over the respective Fiscal Year 1968 totals of 222 actual strength and approximately \$12 million in expenditures. Some of this increase was attributed to the Fiscal Year 1969 merger of Dugway Proving Grounds with the DTC. There were, however, other factors at work 24 such as an increase in activities and inflation.

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SATCOM Agency Historical Summary, FY 1969, pp. 1-13.

23

DA GO 31, 28 June 1968.

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USATECOM AMC Installation and Activity Information Summary, 1 July 1967, subj: Dugway Proving Ground.

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(S) One of the many means by which DTC attempted to attain its mission objectives was its conduct of certain ecological and epidemiological field research and laboratory tests. These tests required Presidential approval and were conducted according to approved safety procedures. The Smithsonian Institute Survey conducted continuous internal field studies on Eniwetok Atoll, on Kure Island, and on the French Frigate Shoals in Fiscal Year 1969, concluding its researches in the latter two areas in that fiscal year. The STAR BRITE Survey made continual observations and studies on Johnson Atoll in surveying seasonal variations and population fluctuations of the wildlife and of their relationships to the nearby ocean, and to collect wildlife sera samples. DTC continued its Fiscal Year 1968 studies of mosquitoes in the Central Pacific to determine their possible relationship to plague birds. Studies similar to the latter two proceeded in Fiscal Year 1969 under the auspices of the U.S. Public Health Service Field Station at Fort Collins, Colorado. Entomologists concluded their studies in the Channel Islands on the distribution of mosquitoes and their relationship to plague birds. They also made continual medical surveillance studies at designated sentinel islands by means of scheduled samplings of wildlife sera. The University of Oklahoma also aided in these efforts. A field team of ecologists conducted continuous studies of wildlife. The teams collected samples of sera, tissues, and parasites from the wildlife and analyzed them for evidence of tularemia. In addition, teams from Dugway Proving Ground continued an intensive


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108

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 surveillance and analysis of zoonoses in Western Utah. They conducted experimental laboratory studies in order to define the roles of birds, mammals, and parasites in the maintenance and spread of diseases. They also made other laboratory examinations of the wildlife and the anthropods in that area to find the evidence and the incidence of viral infections in Western Utah. Despite the number of these medical investigations, the center's conduct of such studies was far less extensive in Fiscal Year 1969 than it had been in Fiscal Year 1968.

(S) DTC acted as the coordinator for many tests concerning chemical biological (CB) weapons systems in Fiscal Year 1969. The center terminated many of these tests and published the results. As of 30 June 1969 several other tests were complete. These tests embraced all manner of weapons systems, such as test spray devices, toxic nerve agents, and biological aerosol generators, and were conducted in many different locations, including Hawaii, Canada, England, Puerto Rico, and CONUS.

(C) One of the most significant result of these testing efforts was the development of procedures, techniques, and items to improve testing. These results included, in a noteworthy variety, the following: a rapid and ultra-sensitive assessment procedure for agent PG; the characterization and the development of benzyl salicylate as a potential simulant for persistent chemical agents; the development of a combination shipping/operational container for sensitive chemical assay instrumentation,

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designed for usage at remote test sites; the modification of agent vapor penetration chambers to permit the testing of permeable protective clothing; the development of automatic spectro-photometer curvettes to facilitate a quicker and more reliable assay of samples; the development of a routine atomic-absorption procedure for the analyses of trace metals in chemical agents; the elaboration of a new technique for the quantification of PG antibodies; the evolution of a lightweight portable biological sampler; the origination of two new methods for the measurement of the amount of anti-cholinesterase materials that were present in samples; and the establishment of a plaque technique for the assay of *Rickettsia rickettsi*.

(S) In addition to the aforementioned activities, DTC engaged in several operational research studies and made an important effort in meteorology. In the former category, the DTC awarded a second and last phase contract to GEOMET for the completion of a Chemical-Biological Weapons and Defense Technical Data Source Book. DTC expected that this book would be a valuable reference point for all DOD CB researchers. Other DTC studies covered various subjects, such as the feasibility of high altitude biological agent release, the effects of chemical nerve agents on animals, and the feasibility of the use of RADAR (LIDAR) to identify "Rain" and bomblet warheads and aircraft spray. In the meteorological realm, DTC accepted the delivery of a Miniature Data Acquisition System (MINIDAS) from Climet Industries in October 1968. This

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system recorded data rapidly and placed it on recall tapes. It was to be implemented by two more MINIDAS units which were on order. In addition, DTC initiated action in February 1969 to procure an FPS-77 Storm Detection Radar from the Air Force Weather Service.

(U) Probably the most important DTC programs, because of long-range implications, during Fiscal Year 1969, was the SAFEST Program. Initiated by DTC and approved for implementation by the Commanding General, AMC, the SAFEST Program was the result of a sheep incident near Dugway, Utah, in which some 600 sheep perished. The purpose of the program was an expansion and an intensification of former safety efforts so that those hazards that could occur in the defensive field testing of CB weapons systems might be reduced or prevented. DTC effected this purpose by implementing recommendations of the ad hoc safety review committee, appointed by the Secretary of the Army. Although the first interest of the program was the resolution of the sheep incident, it also was a response to a growing demand for the extension of those existing safety precautions and for the creation of necessary new precautions, that would safely permit the testing of newer weapons systems and defensive concepts for U.S. employment against a CB attack. Eventually, the DTC intended to base its new safety measures on the work of the program. Thus, while the DTC had implemented field

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(1) Ltr, CG, AMC, to CofS, DA, 4 Apr 1968, subj: U.S. Army Materiel Command Investigation of Death of Sheep Near Dugway Proving Ground, Utah. (2) Ltr, CG, AMC, to CG, USATECOM, 8 May 1968, subj: Investigation of Sheep Incident Near Dugway Proving Ground.

111

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tests for CB warfare, it carefully reviewed those tests that had been scheduled for the near future on a test-to-test basis, carefully following the recommendations of the ad hoc safety review committee.

(U) The DTC recommended, and DA approved, the supersession of the initial ad hoc committee and replaced it by a permanent chemical advisory committee. Composed of medical-scientific experts from outside DA, the committee's mission was the provision of a continuing, impartial review of chemical test programs. The committee was scheduled to meet periodically to review DTC chemical programs, and the first meeting was held on 1 May 1969. It reviewed the chemical test program that was scheduled for the near future, and it approved both the chemical activities of the DTC of the past year and those planned for the forthcoming year.

(U) The committee also reviewed the safety preparations for biological field tests. It made several reviews of the biological tests in Fiscal Year 1969, the last of which was held on 12 June 1969. As in the chemical tests, the committee approved the biological test activities of the past year and for the forthcoming year.

(U) From the period March 1968 through June 1969, the SAFEST Program attempted to answer five major objectives. These consisted of: first, the determination of the cause of the sheep deaths; second, the determination of that time when the range was safe for the grazing of livestock; third, the collection of

information, instrumentation,*and procedures that were deemed necessary to conduct CB field tests with maximum safety; fourth, the development of contingency disaster plans; and, fifth, the restoration of official and public confidence in the safety of tests that DTC conducted. As of 30 June 1969, the DTC had accomplished most of these objectives. DA paid for the sheep. DTC ecologists from the University of Utah, and several other agencies investigated the incident. It was discovered that no grazing animals other than sheep became ill. In October 1968, the Bureau of Land Management declared the range to be safe for grazing of livestock. All of the remaining objectives, being incapable of completion by an inherent continual need for renewal, could only be striven towards by the DTC. This the DTC attempted to do. It made continual improvements in laboratory techniques, in field and laboratory instrumentation capabilities, and in area monitoring procedures.

(U) Special studies and literature searches were made and field and laboratory experimentations was conducted. In addition, recommendations of both the Interagency Ad Hoc Safety Committee and the Chemical Advisory Committees were implemented. The DTC also developed an improved contingency disaster plan and conducted several exercises of the plan during Fiscal Year 1969. Finally, the DTC conducted extensive campaigns to revive outside confidence in its CB testing. For example, it briefed the governor of Utah, selected Utah Public Health and agricultural officials, and other state and local leaders. In addition, the DTC staged an open house

at the proving ground. As Fiscal Year 1969 closed, DTC had under consideration an information plan that would not only continue the talks to selected groups and individuals but also include periodic public information releases and semi-annual reports.

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FLAT-TOP

(U) Project FLAT-TOP involved the development of mobile floating maintenance support facilities in forward or remote areas for new high performance Army aircraft. FLAT-TOP involved a singular utilization of the project manager concept, as it concerned a service rather than a product or a weapons systems. It functioned by means of floating Army maintenance facilities (FAMF), which manifested themselves in the form of the United States Navy ship (USNS) Corpus Christi Bay, a converted Navy seaplane tender that provided Army aviation depot maintenance in Vietnam.

(U) The implementation of FLAT-TOP began with the deployment of the USNS Corpus Christi Bay on station at Cam Rahn Bay, Republic of Vietnam (RVN), on 2 April 1966. On board was the 1st Transportation Battalion, a unit whose purpose was to conduct the aviation maintenance activities aboard ship. This battalion functioned under the direction of a parent unit, the 1st Materiel Group, which was located at the Naval Air Station (NAS), Corpus Christi, Texas. The parent group acted as the control element for

26

Deseret Historical Summary, FY 1969, pp. 1,3-7,10-30.

the 2d Transportation Corps Battalion, a replacement unit in training for the 1st Battalion. The group was under the direction of the FLAT-TOP Project Manager. Two other FLAT-TOP offices were also at Corpus Christi, the FLAT-TOP field office and the U.S. Army Aeronautical Depot Maintenance Center (ARADMAC). The purposes of these offices was to furnish training and administrative and logistical requirements in support of the USNS Corpus Christi Bay.

(U) Fiscal Year 1969 brought a great change in the planned development of the FLAT-TOP Office. In the previous fiscal year, with the incessant demands of the Vietnam conflict and with United States involvement in Southeast Asia (SEA) increasing, FLAT-TOP planners intended to greatly expand their facilities. The most important manifestation of this expansion was to be the deployment of another floating maintenance and repair facility off the coast of RVN. The reduction in American involvement, however, brought such plans to an end; not only was the development of additional facilities deferred, but the project faced an eventual reorganization on 15 October 1969.²⁷

(U) Despite the consideration of deprojectization, the office continued plans for even further development. It conducted studies for the feasibility of the construction of no less than three more FAMF's: one for airframe repair, one for electronics, and one for mechanical items of equipment other than aircraft. These plans,

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AMC GO 187, 15 Oct 1969.

however, were not implemented. The concepts for each of these facilities was reviewed and concurred in but further action on the development of the electronic and mechanical facilities was indefinitely deferred. A program change request (PCR) for the airborne facility was prepared and submitted to the AMC Comptroller in June 1969 but action on the PCR was also deferred for an undetermined period of time.

(U) The deprojectization of Project FLAT-TOP was under consideration even though the need for a CONUS support activity still existed. Consequently, a plan was considered for the absorption of the Corpus Christi Field Office into the USA Materiel Group No. 1 with the consolidated activity continuing to provide the necessary support as an element of AVSCOM or ARADMAC. By June 1968, the office was considering the staffing problems of the Project Manager and the other affected activities.

(U) The remaining problem for the office, in the event of American troop withdrawal from Vietnam, was the disposition of the USNS Corpus Christi Bay. To resolve this problem, the office conducted a study during Fiscal Year 1969 to determine the most feasible disposition of the ship. In view of the troubled world situation, the study recommended that the facility be maintained in a state of readiness, capable of deployment to any area on a 72-hour notice. The study also recommended that when the facility was not needed in other areas (CONUS/OCONUS) the ship would be berthed at Corpus Christi, Texas, to take advantage of the proximity

to ARADMAC. Headquarters, AMC, was in the process of staffing
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for this study at the end of June 1969.

Mobile Electric Power

(U) In Fiscal Year 1968, under DOD designation, DA became the executive agent for the establishment of a DOD Project Manager for Mobile Electric Power. The Project Charter, which the Acting Secretary of the Army signed on 3 August 1967, outlined an organization that consisted of Army, Air Force, Navy, and Marine Corps representatives. The mission of the project was to provide management and standardization for all mobile electric power generating sources within DOD in agreement with military requirements.

(U) The project had three important tasks which were to be accomplished as soon as possible. The first, in priority, was to identify the first generation DOD Standard Family which would be acceptable to the Services and the DSA. Substantial progress was made towards reducing the interim DOD family of 69 generators in Fiscal Year 1969. All of the Services cooperated to achieve this reduction by eliminating those engines that did not have a commonality of parts and by coordinating purchase descriptions and technical data packages of future generator acquisitions.

(U) The second priority for the Project was the determination of operational requirements for and the definition of a DOD

standard family of gas turbine engine generator sets or of sets with other power sources. To achieve this, in May 1969, the project manager sponsored the formation of a joint services working group with the task of defining this second family and recommending measures for its fielding. This group decided that, of all the approaches it had examined, the best was to begin to build the second generation family utilizing the turbo-alternator concept. Turbo-alternators were superior, the group reasoned, because the union of the turbine engine and the high-speed alternator on a single shaft appeared to be a much better means for providing simple, lightweight, reliable, and versatile power generation sources than other sources afforded. Moreover, by the use of a solid state cycloconverter, one set had either 50, 60, or 400 Hz power levels. The group hoped to succeed because of these factors and recent technological progress. The other sources, which consisted of several types of fuel cells and some thermoelectric devices, were delegated by the group, with a few special purpose exceptions, for a future time.

(U) The third and final priority task for the Project was the augmentation of its standard asset position while attempting to meet the Army authorized objective in equipment supply. Most of the project's efforts were concentrated on Vietnam, where theatre standardization applied to 88 percent of all generators by the end of Fiscal Year 1969. Furthermore, despite a rapid increase in unprogramed requests for Vietnam late in Fiscal Year 1969, total generator assets amounted to about 75 percent of DA

recognized distribution authorization and 99 percent of the DA approved program authorization for USARV.

(U) USAREUR lagged far behind other theaters in its standard asset position, both because of Vietnam and because of its previous reluctance to dispose of excess nonstandard obsolete and non-reparable sets. By 30 June 1969, only 46 percent of all generators in USAREUR were standard. To remedy this situation, the project launched a disposal program at a June 1968 Europe closed loop conference and reaffirmed it at a similar conference in March 1969.

(U) Fiscal Year 1969 brought alterations in the finance and organization of the project office. The Fiscal Year 1969 PEMA generator program totaled about 33,000 delivered units that cost approximately \$41.4 million, compared to respective Fiscal Year 1968 figures of 29,623 items and \$58.5 million dollars. The lower Fiscal Year 1969 cost per generator was probably the result of the standardization program. The chief organizational change in the office was the phase-out of the Mobile Electric Power Field Office in St. Louis, Missouri. The Office in Washington, D. C., assumed
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the critical responsibilities of the defunct office.

Special Mission Operations and Special Warfare

(U) The Project Manager, Special Mission Operations (PM-SMO), was a Joint Chiefs of Staff (JCS) creation that had as its mission

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Mobile Electric Power Historical Summary, FY 1969, pp. 1, 4-6,9-11.

the implementation of the Army's portion of a project that the Secretary of Defense had begun and that required the support and
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the participation of all of the military departments. In its role, the SMO Office bore the responsibility for Army tasks that were related to classified DOD Projects and the monitorship of the expanded application of project type assets globally. Specifically, these duties involved the formulation of concepts and general plans; the expedition of projects, including their assignments to the proper AMC agencies and their integration, if necessary, into intricate joint weapons systems; and, finally, the acquisition of nonstandard materiel for use by Special Forces, Psychological Operations (PSYOPS) and civil affairs units. JCS monitored the project, and an ad hoc organization, the Defense Communications Planning Group (DCPG), directed and coordinated it in order to specifically formulate concepts and general plans and to speed fulfillment. Like FLAT-TOP, the SMO Office was service, rather than product or weapons systems oriented, and its uniqueness in orientation was matched by its importance. At the time of its establishment, and through Fiscal Year 1969, the Office enjoyed the highest national priority.

(U) The SMO Office, which received formal authorization on
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21 March 1967, functioned from its beginning with a small staff. No important changes occurred to the Office in organization or

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JCS msg 2343/907, 15 Sep 1966.

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AMC GO 33, 4 May 1967.

function through Fiscal Year 1969. The Deputy Secretary of Defense did move to deactivate the DCPG and give its work to the respective services, but the Director of Defense Research and Engineering decided to retain the DCPG at least until Fiscal Year 1973.³² In addition, on 21 January 1968, DA approved a revised TDA of nine officers, six NCO's and 10 civilians.³³

(U) With this small force, the Office concentrated on the development and fielding of several important classified items and systems in order to fulfill its primary mission of DCPG support. The Office felt that it had successfully met those demands that had been placed upon it, and it anticipated a greater number of future demands. The Office presided over enormous expenditures of money. The Army portion of the DCG effort alone, excluding Special Warfare, PSYOPS, and Civil Affairs funding, totaled about \$897 million from Fiscal Year 1967 to Fiscal Year 1970. Of this expenditure, \$92 million was for RDTE, \$678 million for PEMA, \$95 million for OMA, and \$2 million for MCA.³⁴

(U) Operating similarly to the SMO Office was the Project Manager's Office for Special Warfare (Unconventional and Psychological), whose mission was to coordinate planning, direct work,

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(1) Memo, SECDEF to MCS, 6 Aug 1969, subj: DCPG Senior Evaluation Committee. (2) Rpt of Senior Evaluation Committee, AMCTS 222-68, 19 Nov 1968. (3) CSM 69-12, 10 Jan 1969, subj: DCPG Integration Planning Committee. (4) DCPG Integration Planning Committee Report, 10 Apr 1969.

33

Ltr, AMCPM-S to AMCPM-SMO, 22 July 1968, subj: DA Approval of TDA.

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Special Mission Operations Historical Summary, FY 1969, pp. 3-9.

and control the resources for those AMC activities that were connected with the provision of required weapons and equipment for special forces and worldwide PSYOPS units. In Fiscal Year 1969, as in past fiscal years, most of the work of the Office concerned the American forces in Vietnam. With a small staff that consisted of 1 officer and 8 civilians, the Office managed about \$59.59 million in PEMA and OMA funds in support of Special Warfare, ENSURE, and all Quick Reacting Procurement items. By means of these expenditures, the Office prepared an approved Project Master Plan by December 1968 and aided in the delivery of several items to RVN, including such things as an AN/TSC-26 transportable base radio station, an airboat communications system, and an airboat smoke unit. In addition, through the QRP system, the Office directed and managed approximately 3,978 line items valued at \$2.6 million.

(U) In Fiscal Year 1969 the SMO and the Special Warfare Offices merged. This action arose from the Commanding General's plan to reduce the number of project managers. He felt that the offices conducted similar functions and that the merger would eliminate duplications in personnel, funds, and actions. The Special Assistant for Project Management (SA-PM) on 12 May 1969 submitted a plan to the Commanding General, AMC, for the merger

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DF, AMCPM-SMO to AMCSA-PM, 12 May 1969, subj: Proposed Merger Plan of Project Manager, Special Warfare with Project Manager, Special Mission Operations.

of the Special Warfare and SMO Offices. Shortly thereafter, following a Commanding General, AMC-issued review of project management, the SA-PM issued implementing instructions for the

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merger. The SMO Office immediately forwarded the completed necessary documentation for the merger to Headquarters, AMC, on

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26 June 1969. Meanwhile, operating upon vocal instructions from the SA-PM, the two offices physically joined on 26-27 May.

When the administrative details were completed on 7 July, the new office, called Special Mission Operations, became fully operational under its new mission and functions. On that date, COL David V. Armstrong, who had formerly acted as the designated Project Manager for SMO, added to that post the responsibility of Special Warfare, thus becoming the first Project Manager for Special Mission

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Operations and Special Warfare.

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DF, AMCSA-PM to CG, AMC, 12 May 1969, subj: Proposed Merger Plan of Project Manager, Special Warfare with Project Manager, Special Mission Operations.

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(1) Ltr, CG, AMC, to all major subordinate commands, 10 June 1969, subj: Review of Project Management. (2) DF, AMCSA-PM to CG, AMC, 20 June 1969, subj: same.

38

DF, AMCPM-SMO to CG, AMC, 26 June 1969, subj: Revised MTDA for AMCPM-SMO, 26 June 1969.

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(1) Msg, AMCSA-PM 60489, 19 June 1969, subj: Designation of Project Manager, Special Mission Operations.

CHAPTER IV

(C) RESEARCH AND DEVELOPMENT

(U) Introduction

Research, development, test, and evaluation (RDTE) included the conception, development, production, and assessment of the most recent and the most technologically advanced weapons and equipment by the U.S. Army Materiel Command (AMC) for the U.S. Army. RDTE thus involved both an idea and a product; the former concerned processes, procedures, and concepts, while the latter involved management and outputs. Besides difficulties that lay in the inherent nature and mission of the RDTE product-oriented program, the AMC, which assumed the role of RDTE manager for the Army, also faced two other problems. One was the constant change in its customer's needs and demands that occurred frequently with the steady alterations in the Army's global position. The other was the growth in complexity and sophistication of the RDTE output, that accelerated with each change in technology.

Consequently, AMC was involved in a complicated dynamic process. This dynamism reflected itself in the changes in the types and numbers of weapons and equipment, reorganizations, and numerous investigations and studies. Furthermore, because of the size and characteristics of the required weapons and equipment, the AMC also had to deal with the weapons research and development of industrial firms, who produced most of AMC's commodities.

The major RDTE problems for the AMC in the years preceding Fiscal Year 1969, and during that year, arose from the modernization of the Army and the requirements of the Vietnam conflict. Moreover, AMC had to deal with the drain on weapon stocks by the war in Southeast Asia (SEA). Vietnam, for example, had several natural physical conditions, such as great distances, extreme variations in terrain, and a tropical climate which, combined with its poor transportation network and military difficulties, posed formidable difficulties. To overcome these obstacles, the United States relied greatly upon air mobile capability for its forces, centering its attention upon the helicopter. Hence, modernization and immediate need had to be met together. The helicopters used in Vietnam had only recently become a standard part of the Army inventory. There were many sizes and types of helicopters, and they performed several missions, ranging from observation ships to flying platforms for weapons. As their usage increased in both numbers and extent, so did Army maintenance and supply for them. The Army supplied hundreds of components to keep its helicopters aloft.

AMC not only faced urgent demands for critical items, such as helicopters, it also had to supply more common articles, such as clothing. To effect this supply, the AMC had to rely upon planning and management. Industry was not always able to produce and deliver items on schedule, and the Army could not stockpile items for emergencies that had not yet arisen. Nevertheless, the Army would not tolerate slippages in delivery dates upon its critically needed

items, and it did not view with favor any late deliveries of large quantities of ordinary items that it had urgently requisitioned.

(U) RDTE Management

In response to its needs, the AMC relied heavily upon its top-level management which had to understand both the workings of the RDTE structure and how to make it work. This was accomplished by means of planning, regulation, organization, and continual review. AMC management, because of the inherent flux in goals and demands, created a flexible structure that was responsive to any Army requirements.

(U) Army Program Planning and Management

To accomplish the AMC mission, it was imperative that AMC managers achieve some measure of control over the most prominent characteristic, flux. Unregulated, flux could destroy management stability and inhibit productivity. To achieve this control, the AMC attempted to anticipate changes by developing annual plans which projected possible requirements several years into the future. In logistics, for example, an Army force development plan provided guidance and predictions about costs and requirements, and commented upon the relation of R&D (research and development) to modernization. It also attempted to prophesy technological advances,

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(1) AR 705-5, 15 Oct 1964, subj: Research and Development of Materiel, Army Research and Development. (2) AR 705-5, C1, 6 Oct 1965, subj: same. (3) AR 705-5, C2, 1 June 1966, subj: same.

schematized a global strategic summary, offered Army ideas to deal with cold, limited or unlimited war conditions and showed to what degree the United States could respond to threats in view of current programs and budget limitations.

(U) Management Systems and Procedures

Mission Changes

One indication of a flexible management policy in RDTE matters was the July 1968 reorganization of Headquarters, AMC. In this reorganization, the Director of Development and Engineering assumed the management responsibility for product engineering functions, which included advance production engineering, military adaptation of commercial items, and production engineering for stock fund items and engineering in support of procurement. The Director of Research, Development and Engineering (AMCRD) became the resource manager within each of these areas, and assumed the related responsibilities in the fiscal and budget spheres. To effect an orderly transfer of these responsibilities, AMCRD signed a memorandum of understanding with the Directorate of Procurement and Production (AMCPP), which had formerly managed the three functions. Thus AMC centralized the management of engineering into one directorate. This action, when considered with the Headquarters, AMC, reorganization, provided an interface between AMCRD and the rest of AMC. On 1 July 1968, AMC began the execution of this concept by the activation of the Engineering Division. At the end of Fiscal Year 1969, the command was still

implementing the division's activation plan.

Materiel Management

Basic to RDTE output was AMC adherence to a model for the management of materiel throughout the life cycle. In order to improve its materiel readiness program, the Army developed this model in Fiscal Year 1967. Based upon the consolidated recommendations of the DA Board of Inquiry on the Army Logistics System (Brown Board) and a special study committee, the Committee of Four, the model won the approval of the Army Chief of Staff as a foundation for the review of regulations on materiel management. The review was eventually to result in a set of integrated management manuals to govern the acquisition, use, support, and disposition of Army materiel. Also, the review was to effect the alterations in the existing materiel acquisition system that the model required. The model itself encompassed four phases—concept formulation, contract definition, development and production, and operation and disposal. It included ideas about what the army of the future should be, developed these ideas into particular materiel systems, and listed the important steps that would be needed to effect these actions.

DASSO's

The Army utilized a model life cycle for the management of

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AMCRD Historical Summary, FY 1969, p. VIII-1.

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Report by the DA Board on Inquiry on the Army Logistics Systems, 6 vols, FY 1967.

materiel. It dealt with these special areas through Department of Army Systems Staff Officers (DASSO's). Created in late 1965, the DASSO position called for a designated individual to act as the DA point of contact and to monitor the development and life cycle of a system or item selected by the Chief of Staff for special surveillance. The DASSO also acted as a coordinator for interested Army agencies, providing a valuable flow and interchange of information on the life cycle of weapons systems at various command levels.

The DASSO's role in the system/project management area of RDTE was very important. They were obliged to attend those meetings and conferences at which high-level RDTE decisions were made, and, like the AMC project managers, they had to follow uniform milestones in the life cycle of a weapon system. In early 1968, the DA formalized the DASSO position. The Army listed the master milestones, in the RDTE process from the conception through the retirement of a system. It also detailed the DA staff and the other responsibilities related to the DASSO's.

(C) ENSURE

(U) One of the Army's most difficult logistical tasks in Fiscal Year 1969 was the support of their armed forces in Southeast Asia. A great measure of this support involved the dispatch

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AR 70-17, 19 Jan 1968, subj: System/Project Management.

of special items of equipment on a priority basis under the auspices of a program known as ENSURE (Expediting Non-Standard Urgent Requirements for Equipment).⁵ Intended solely for SEA support and under AMC management, ENSURE was designed to speed non-standard and developmental equipment to the Army combat forces. By its nature, ENSURE involved only those materiel items that the Army supply system did not have. Hence, most ENSURE requests meant a first-time procurement of Army items.

(U) As of 30 June 1968, AMCRD had either under development or other form of management a total of 51 items for the ENSURE program. At the end of Fiscal Year 1969, the directorate reported that it had completed 10 ENSURE and 17 other expedited developments during the fiscal year and 53 more items remained under development. All of these items were for urgent requirements in Vietnam. With the dispatch of these items, the directorate attempted to give either a new or an improved capability to each recipient Army unit.

(U) AMC's ENSURE activities proved increasingly expensive in Fiscal Year 1969. The initial RDTE program released to AMC for Fiscal Year 1969 totaled \$785.6 million; by 30 June 1969 the released program had grown to \$992.5 million. Unexpected difficulties played a part in this increase. In the Procurement of Equipment and Missiles, Army (PEMA) funds, for example, AMC spent some

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AMCR 525-2, 7 Feb 1968, subj: Expediting Non-Standard Urgent Requirements for Equipment.

\$89.2 million that was allotted by DCSLOG. Much of this expenditure came from ENSURE requests that were previously unprogramed. That necessitated rapid and frequently sole source procurements, which required unrestricted overtime hours. Of the 62 projects that comprised the PEMA program, 14 were "late start" projects that had not been listed in the approved program. Moreover, this increase in total PEMA cost came despite the non-release of approved programs for the TOW, the AH/56A, and the DRAGON Night Sight because of developmental delays.

(U) ENSURE problems also had a considerable effect upon command level operations. The ENSURE program did succeed, however, in providing a means for AMC to remedy the lack of suitable standard items by expediting urgently needed non-standard substitute equipment to Vietnam. Although the ENSURE program did continue to use much of AMC's resources, the command made improvements in the management of the program and sent many items to SEA.

(U) Paramount among the management reforms in the RDTE program was the initiation of the Vietnam Laboratory Assistance Program, Army (VLAPA). The purpose of VLAPA was to meet the DA objective of providing in-country AMC laboratory representatives with a means for interchanging information with their parent laboratories. Specially, VLAPA personnel, upon encountering problems in Vietnam, would supply the home laboratories with requirements for quick engineering solutions to these problems. By 30 June 1968, VLAPA personnel had started 18 projects, 7 of which were completed.

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(U) AMC continued its policy in regard to the standardization of ENSURE items from RDTE sources. The Army had for some time classified all such items as a limited production (LP) type; however, this equipment had attained a very high volume flow by Fiscal Year 1969.⁶ Consequently, AMC initiated action to have all those items that the 1st Cavalry Division had found to be reliable, maintainable, and suitable for their intended uses to be reclassified as Standard A.⁷ Later AMC incorporated this action in the ENSURE regulation.⁸

(U) The ENSURE items that AMC produced in its Fiscal Year 1969 RDTE program dealt with many areas of military interest. RDTE developed a semiactive guidance system for U.S. Air Force (USAF) use. This system guided bombs with great accuracy to targets which had previously been designated by laser illumination. Already employed in Vietnam, the system provided the U.S. forces there with so called "pin point" bombing accuracy.

(C) Other significant ENSURE items produced in Fiscal Year 1969 included a M72A1 Light Antitank Weapon (LAW). A safer, stronger, and more reliable launcher, the new LAW overcame difficulties that the USARV had experienced with the older model.

⁶ (1) DA ltr, AGAM-P(M) (4 Apr 66) DCSLOG, 7 April 1966, subj: Type Classification and Support of Non-Standard Items, App. 1. (2) DF, Actg Dir, DMI, 26 June 1967, subj: same.

⁷ DF, DMI to Dir Dev, 26 June 1967, subj: Type Classification and Support of Non-Standard Items.

⁸ AMCR 525-2, 7 Feb 1968, subj: Expediting Non-Standard Urgent Requirements for Equipment.

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RDTE also made available to the USARV an M72A1E1, which had a precision warhead to penetrate heavily armored tanks. The first delivery of this weapon was scheduled for October 1969. Also produced were general equipment items, such as a lightweight water purification unit, a forward area refueling system, a miniaturized infrared intrusion detector, a remotely operated mine detector, a man portable tunnel detector, a mine clearing device, general purpose barbed-tape obstacles, cargo detectors, airborne harmonic radar, and a lightweight camouflage net.

(C) Several new RDTE products appeared in Fiscal Year 1969 from the work of the Mobile Army Sensor Systems Program, formerly known as Search and Destroy. These products consisted of a large area terrain denial system that employed agent CS-2 dispersed from helicopters; a visual airborne target location system that incorporated a laser range finder; improved airborne personnel detectors (People sniffers"); and an improved tunnel detector. Of these developments, the first three were under SEA evaluation at the end of Fiscal Year 1969, and the fourth was ready for shipment to SEA for such evaluation. Yet another product from this program, a balloon antenna system that extended the data link range of sensor systems and that supported the DUFFLE BAG/IGLOO WHITE sensor systems, was already in usage in SEA.

(C) Other important ENSURE requirements were in the electronics field of equipment. Various kinds of equipment, such as radar homing devices and warning receivers, were needed

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for aircraft in SEA. One device, for example, was a low frequency non-directional radio navigation beacon that functioned as a terminal and enroute point to point navigation aid for aircraft. Also needed in SEA were many types of devices for radio sets and sophisticated transmission and related security equipment. Wide band voice security equipment deployment continued to Vietnam in Fiscal Year 1969. Production of digital transmission devices, such as the HYL-3 and the HYL-4 which allowed the retransmission of unencrypted and encrypted signals, rose during the fiscal year. Other special items were produced, such as the AN/PSN-2 Loran Manpack. This was a navigation set that accurately fixed the users position and functioned as a long range precision radio. The manpack was undergoing a military potential test in SEA at the close of Fiscal Year 1969.

(U) The urgency of Vietnam demands in the ENSURE program, in which expediency was often the major guide for AMC RDTE management appeared in great contrast to the orderliness with which that management conducted its pursuit of other major objectives. These objectives were to be found in the DA Combat Development Objective Guide (CDOG), set forth as Army general combat objectives. Grouped under 18 major categories, such as field artillery, armor, infantry, and other operations, these objectives formed the basis for all long-range efforts in RDTE planning. Planners intended that they

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(1) AMCRD Historical Summary, FY 1969, pp. II-1-II-13. (2) See also "Army Materiel Command Cites Vietnam Support on Anniversary," Army R&D News Magazine, Vol. 9, No. 8, Sep 1968, pp. 3, 14, 15.

UNCLASSIFIED

follow the expected technology [REDACTED] for this purpose they attempted to project their probable requirements into the last decade of the 20th Century. Important to this projection was the work of the Institute of Land Combat (ILC) of the Combat Developments Command (CDC), an agency that coordinated with AMC on this matter. By such coordination, the AMC planners were able to achieve a delicate balance in their projects between what was possible in cost terms and what was possible in technological terms in weapon and equipment advances.

(U) In order to avoid technological lags behind potential enemies, AMC constantly sought to improve its planning procedures. The most prominent manifestation of this effort was the creation of the U.S. Army Advanced Materiel Concepts Agency (AMCA).¹⁰ The AMCA acted in conjunction with the ILC. They had a collective mission which was supported by the Intelligence Threat Analysis Group (ITAG) of the Assistant Chief of Staff for Intelligence. This mission was to prepare the recommended designs of the total land combat system and to guide the development of selected major materiel concepts through concept formulation. Execution of this mission was to be achieved in three steps: first, the ITAG was to notify AMCA/ILC of coming threats; second, the ILC was to formulate concepts to meet these threats; and third, the AMCA was to suggest alternative materiel systems and concepts to equip the

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USAMC GO 73, 29 Sep 1967.

future forces, to conduct the necessary design work, and to act as a contact point for those concepts that originated at AMC elements and in industry during the concept formulation phase. 11

(U) AMCA attempted to further insure coordination between itself and the other participating agencies by means of two memorandums of understanding, the first with the ILC on 30 July 1968 and the second with the ITAG on 17 September 1968. At the beginning of Fiscal Year 1969 the AMCA began operations under Acting Director Dr. R. G. H. Siu who operated with an authorized personnel strength of 83 civilians and 19 officers and an actual strength of 14 civilians and 1 officer. Dr. J. V. Kaufmann replaced Dr. Siu in January 1969. As of 30 June 1969, the actual strength was 10 officers, 71 civilians, and 1 enlisted man. 12

(U) The AMCA conducted several fruitful activities in Fiscal Year 1969. Most of these fell in the studies area. For example, it contributed to the Land Combat System Study (LCSS)-90. These contributions consisted of advanced materiel systems and concepts to the ILC's Compendium of Plausible Materiel Items. AMCA utilized about 75 percent of its available technical manpower in this work, which covered the areas of mobility, firepower, intelligence, command/control, and service support. Another AMCA contribution

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(1) AMCR 10-82, 17 July 1968, subj: Organization and Functions, Mission and Major Functions of the U.S. Army Advanced Materiel Concepts Agency. (2) AMCA Memorandum 10-2, 1 July 1968, subj: AMCA Organization, Mission and Functions. (3) AMCA Memorandum 10-1, 29 Jan 1969, subj: Research & Development, The Materiel Concepts Development Process.

12

AMCA Historical Summary, FY 1969, pp. ii-iii, 29-30.

was its input to the initiation of a data bank. AMCA began to place all concepts, for all time frames, within a data bank from which they could later be drawn. Using CDC's computer facilities, the AMCA began to publish in June 1968 a Catalog of Advanced Materiel Concepts, which was also available in a shortened form known as the Summary of Advanced Materiel Concepts (SAMC). The first catalog contained 51 concepts.

(U) To increase the future flow of concepts and ideas, AMCA relied greatly upon the Ad Hoc Working Group (AHWG) whose basic purpose was to provide advanced materiel concepts and to explore technical barriers for materiel for the future. The AHWG drew from all available skilled personnel within the U.S. R&D community and concentrated the attention of selected personnel upon a small area of interest. AMCA, however, because of an unexpected amount of work before and after AHWG subject treatment, and because of inexperience and deficiencies in personnel and office space, conducted only six of these studies in Fiscal Year 1969. They were as follows: future warfare in urban areas; the adverse effects of slopes on military operations; electromagnetic, acoustic, and ionized gases for military operations; automated intelligence for the tactical Army 1980/90; very heavy lift aerial concepts; and low frequency magnetic shielding. AMCA expected to rectify these deficiencies, and planned to conduct about thirty AHWG's during Fiscal Year 1970.

(U) In addition to the work of the ad hoc group, the AMCA pursued its study efforts by assignment to another agency, by

in-house effort, and by contract methods. During early Fiscal Year 1969 the AMCA pursued the contract method successfully by concluding negotiations with the Washington Procurement Division, ECOM, which was to provide the contracting officials. These officials, by the end of Fiscal Year 1969, were finalizing two contracts, one solicited, the other unsolicited. The successful bidder for the solicited contract was Sanders Associates, Inc., of South Nashua, New Hampshire. The objective of this contract, known as Communications-Electronics Survivability and Vulnerability-TF90 (ESV-90), was the identification, cataloging, and annotation of judgment techniques for estimating the survivability of communications-electronics systems for the Army in the field. The bidder's task, therefore, was to identify the 1985-95 Army in the field systems that were relevant to the analysis of their survivability and vulnerability to synthesize an enemy threat model for the 1985-95 time frame, to prepare an annotated catalog for the estimation of the survivability and vulnerability of electronic systems, and to submit progress reports to document the work and the results.

(U) An unsolicited contract came from Tellivion, Inc., Santa Monica, California. Investigators working under this contract were to attempt to resolve the validity of the hypothesis that holds that the electrolyte confinement in narrow channels of neural tissues produces a magneto-resistive effect on those tissues. Second, they were to collect all available knowledge on known

cases of interaction between external fields and the nervous
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system.

(U) As the above evidence would indicate, the AMC had fulfilled its expectations with the creation of the AMCA. By means of this agency, the command could cooperate effectively with the ILC agency in the pursuit of CDC's 165 functional objectives for
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alternative materiel systems and concepts for combat. Moreover, the AMCA and the ILC coordinated with each other in their common
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effort.

(U) Advanced Technological Research

AMCA was merely one of AMC's most prominent solutions to the problem of technological progress. Obsolescence was the key to this problem; the AMC could never develop any ultimate weapon or piece of war materiel with certainty, because as one appeared, some advance in technology made a better weapon possible. As a consequence, AMC found that an acceptance of, and an ability to, change were the most likely answers to this difficulty.

To achieve the necessary adaptations, the AMC engaged in an extensive research program. Aided by DOD which, in addition to

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Ibid., pp. 7-26.

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CDC Institute of Land Combat, Plan of Study for the Compendium of Plausible Materiel Options of Land Combat System-90, dated 10 Apr 1968.

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Ltr, Cmdr, ILC, to Actg Dir, AMCA, 9 Aug 1968.

its own efforts, continued to support almost half of all of the academic research in the physical sciences and engineering being done in American universities and colleges. AMC had as its RDTE goal the advancement of knowledge in a measured effort that embraced all science and technology that DOD experts considered relevant to national defense. To reach this goal, the AMC followed the guidelines laid down through the Army combat development studies, which lead to the determination of operational concepts and techniques or qualitative materiel requirements (QMR's). QMR's, which incorporated the results of Army concept and doctrinal studies and special studies of particular importance, were approved statements of military needs for new items or systems, the development of which was beleived to be feasible. As such, QMR's only functioned as foundations for the development of technological outlines and did not act as statements for the overall improvement of methods or for research. Qualitative materiel development objectives (QMDO's) assumed this latter function. Both QMR's and QMDO's had DA-assigned priorities and served as a basis for allocation of funds for research and development.

A remaining foremost task for the AMC RDTE program was the production of new commodities. AMC management believed that this could be best accomplished by the assignment of the various research topics to specific military departments in accordance with their capabilities and interests. In materiels, for example, RDTE developments produced new materiels for solid-state electronics,

for lasers, and for new high conductivity devices. In electronics, RDTE resulted in laser communications techniques, in improved methods for underwater communication, and in expanded battlefield communication systems. Developments such as these convinced AMC¹⁶ that the division of the research program was a wise decision.

(U) Exploratory Development

Army experience suggested that research alone could not produce the necessary technical knowledge upon which to base future war materiel. Consequently, the AMC RDTE effort depended upon exploratory development as a complement to its research efforts. RDTE management grouped its exploratory development projects by areas of technology, such as electronics or communications, and focused exploratory efforts on the needs of the soldier.

Generally, the combat soldier needed protection against the enemy and enough firepower equipment to enable him to effect his mission of defeating the enemy. Specifically, this meant tropical clothing, radar surveillance items, rapid firing and accurate fire-arms, radios, and other items, varying from bulletproof vests to items as elaborate as an evacuation helicopter.

AMC fielded several such items in Fiscal Year 1969. These items came from the validation of several efforts in the areas of creative design, engineering design, and product improvement. Many of these items were in support of SEA activities.

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H.R. 92318, Hearings, 90th Congress, 2d Session, March 12, 1968, p. 512.

UNCLASSIFIED

AN/URC-68

(U-FOUO) The new AN/URC-68, an emergency rescue radio for downed air crewmen, allowed them to have voice communications on either UHF(AM) or VHF(FM) bands. The previous set, the AN/URC-10, had only a single UHF channel capability, thus restricting airborne direction finding and homing to those aircraft which carried UHF homing sets. The AN/URC-68 of which the first sets arrived in SEA in June 1969, permitted all aircraft and ground units with direction finding equipment to locate the downed crews.

Low Frequency Beacon

(U-FOUO) The low frequency beacon, a nondirectional radio navigation beacon functioned as a terminal and an enroute point-to-point navigation aid for aircraft. Designed for use by both regular and special forces in all combat levels, the beacon appeared in three configurations—manpack, tactical, and semi-fixed beacons. The beacon was scheduled to undergo service tests and to be employed in over seas theaters by Fiscal Year 1971.

2.75 CS Aircraft Rocket

(C) The 2.75 CS Aircraft Rocket, an ENSURE item, was a modification of the rocket, 2.75-inch, Tactical CS FFAR, XM80. The modification, which consisted of a replacement of the R-C fuze of the XM80 with the WDU4/A fuze, enabled the rocket to be fired from a standard 159C aircraft launcher. Upon fuze initiation, 32 submunitions could be dispersed over an area of approxi-

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mately 1/3 of an acre. Validated ENSURE requirement called for 10,540 rockets for USARV operational evaluations, and developers expected to begin deliveries to Vietnam in November 1969.

Quiet Airplane

(C) In July 1968, under authorization, the AMC began negotiations with the Lockheed Missile and Space Company as a sole source for 11 QT-3's later designated YO-3A aircraft. To satisfy an urgent requirement for quiet aircraft, USARV requested 10 YO-3A's to carry on surveillance operations in areas of known and suspected enemy activity; the other craft was to be tested in continental United States (CONUS). The YO-3A featured a muffled engine; a wooden, slow-turning propellor; and a basic sensor payload, which consisted of a night vision aerial periscope that incorporated a laser target designator and an infrared illuminator with a 4.1 and a 1.75 degree beam for search, observation, and target detection. AMC had produced three aircraft and one sensor by the end of this fiscal year but the program was delayed due to a shortage of funds.

17

Dust Control

(U) Dust clouds raised by aircraft landing and take-off operations in sandy areas, adversely effected aircraft and vehicle performance, and personnel health and morale. AMC, therefore, had been greatly interested since early 1966 in the reduction of these clouds. A program for dust cloud control began in that year

17

AMCRD Historical Summary, FY 1969, pp. II-5-II-7, II-12-II-13.

UNCLASSIFIED

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and in Fiscal Year 1969 promising test results were achieved with a mixture of centrifugal natural latex and a catronic asphalt-neoprene blend. These materials were combined with a continuous-strand fiberglass roving. At the end of Fiscal Year 1969, the AMC recognized a need for further soil tests for this new dust palliative and for initiation of emplacement considerations, should it be adopted.

18

(C) Surface Mobility

Assault Bridge for M113

(U) The assault bridge for the M113 consisted of two basic items: a box-shaped bridge that unfolded to form two treadway sections, and a launcher that was welded to the M113 hull. The bridge had a 30-foot gap-crossing capability for assault and combat vehicles that weighed up to 18 tons. AMC shipped 24 of these bridges to Vietnam for evaluation.

M113 APC Modifications

(C) In September 1967 the AMC, under DA authorization, began to fulfill an urgent requirement in Vietnam for five mine and fire protection modifications for the M113 and M113A1 Armored Personnel Carriers (APC's). Featuring a kit form, so that they could be used on vehicles in the field, the modifications consisted of: a belly armor bouyant vane kit to give the front underside of the

18

William L. McInnis and Royce C. Eaves, "Dust Control in Vietnam," Army R&D Newsmagazine, Vol. 9, No. 10, Nov 1968, pp. 24-25.

UNCLASSIFIED

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vehicle additional mine protection; a rerouted fuel line kit to protect the fuel line from mines; a driver's restraining harness; an emergency crew ramp release kit; and a reticulated polyurethane foam (RPF) kit for the vehicle fuel tank to reduce a potential fire hazard. The RPF kit, however, proved ineffective in both Aberdeen Proving Ground (APG) tests and Vietnam service. AMC prepared for final tests an automatic fire suppression system for the M113 and M113A1 vehicle family, which was designed to extinguish primarily fuel and combustible material fires resulting from direct fire and mine attacks against the vehicle. Other AMC items for this family included bulldozer and recovery kits and the XENON searchlight vehicular mounts.

Quadruped Transporter

(U) AMC completed the first prototype of a 3000-pound test bed vehicle that combined the dexterity, brainpower, and versatility of an operator with the size and strength of a machine. This vehicle was designed to improve mobility and materials handling operations. The transporter featured a servo-mechanism, sensitive feed-back, and quick response. AMC began laboratory tests on the first model during this fiscal year.

Beach Discharge Lighter Mark II

(U) AMC developed the improved Beach Discharge Lighter (BDL MK II) in Fiscal Year 1969. The new lighter outperformed the previous BDL in the transference of roll-on/roll-off (RO/RO) and other cargo from ship to shore. AMC expected that the MK II

UNCLASSIFIED

146
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would enhance the Army's logistics-over-the-shore capability.

(U) Other Environmental Research

AMC-OCE Terrestrial Sciences Center

AMC and the Office of the Chief of Engineers (OCE) reached an agreement in Fiscal Year 1969 on the responsibilities of each, to each other, in regard to their joint efforts in terrestrial sciences research. This agreement was the result of 18 July 1968 correspondence from General Cassidy, OCE, to General Besson, AMC, requesting coordination in such research. The agreement had two significant provisions: it effected the transfer of the USA Terrestrial Sciences Center from AMC to OCE, with the exception of the Photographic Interpretation Research Division which went to the Night Vision Laboratory, U.S. Army Electronics Command (ECOM); and it restructured the AMC Fiscal Year 1970 and future year programs in terrestrial sciences research in order to bring about a transfer of responsibility for selected study areas from AMC to OCE. AMC was to continue to conduct this research, but only in those areas that concerned the RDTE of Army materiel.

Meteorological Rocket Research

AMC was most active in meteorological rocket research in

19

(1) AMCRD Historical Summary, FY 1969, pp. II-4, IV-12-14, V-14, V-27. (2) For further details on the Assault Bridge for the M113 and the Quadraped Transporter, see [Ed.], "Assault Bridge Undergoing Product Unit Tests," Army R&D Newsmagazine, Vol. 9, No. 11, Dec 1968, p. 25 and "Quadraped Demonstrates Potential Capabilities," same, Vol. 10, No. 4, Apr 1969, pp. 1,3.

Fiscal Year 1969. Meteorological research and development (R&D) teams under the direction of the Atmospheric Sciences Laboratory, operated four Meteorological Rocket Network (MRN) sites. These sites were located at White Sands Missile Range, New Mexico; Fort Greely, Alaska; Green River, Utah; and the Canal Zone, Panama. During Fiscal Year 1969 the teams made some 745 soundings, including 710 meteorological rockets and 35 upper-air atmosphere gun probe firings. Data from these tests supported the Army Meteorological Research Program, the Safeguard Missile Program, the Defense Atomic Support Agency, the Corps of Engineers Inter-Oceanic Control Study, and the Air Force and Navy Research and Operational Forecasting Programs.

AMC also participated in the development of rocket systems under a U.S.-Canada Defense Development Sharing Project. Canada paid most of the contractor cost for Phase I of this project and will pay one-half of the contractor cost for Phase II. Studies in the project included an investigation of falling mass hazards.

Natick Studies

The Earth Science Laboratory at Natick contributed many efforts in Fiscal Year 1969. Of particular importance among these efforts were three special studies, one project, and one program.

The three studies dealt with the SEA region. They included investigations of the food geography of the SEA mainland; environmental conditions relating to harmful insects in SEA; and thematic

mapping of significant military [REDACTED], such as food storage estimates, ethno linguistic groups, and heat stress tolerance for jungle patrols. Natick supplemented these studies with detailed studies of SEA environmental conditions and their effects on man, material, and equipment.

Project TREND (Tropical Environmental Data) was an ARPA-sponsored (Advanced Research Project Agency) data study conducted in Thailand by the Earth Science Laboratory. The primary purpose of the study was to determine the degree of similarity between the Army's Tropical Test Center in the Canal Zone and areas of SEA. Project workers spent all of Fiscal Year 1969 in data collection, and recorded their findings on magnetic tape for processing and analysis by an IBM 360 computer in Bangkok. In addition, they conducted a concurrent soil and vegetable survey with this exercise.

The studies involved an extension of the overall Earth Science Laboratory activities to include basic research in the terrestrial sciences with reference to the properties and behavior of the earth's surface and of materials found therein with emphasis upon those physico-geographical properties that were related to military problems. In Fiscal Year 1969 researchers began preliminary studies to develop methods for the classification of information relative to mountain environments in particular areas. They hoped that the methods used could be applied to later studies

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20

of other prominent geographical features, such as deserts.

(C) Electronics

Electronic Fuzes

(C) AMC had four projects, of particular note, in progress in electronic fuze work during Fiscal Year 1969. One of these projects, which was devoted to electronic fuze systems, served as the basis for all work in this area. Advances here included the development of modulation techniques for radar-type fuzes, pseudo-random and noise-modulated fuzes and highly accurate electronic time fuzes. Based upon this work, AMC developers were able to effect many specialized products. One project, for example, which dealt with the components, materiels, and techniques for electronic fuzes, provided all of those particular components for these new fuze systems and included special developments, such as the miniaturization of fuze circuits and radar components to an extent that permitted the improvement of the accuracy of smaller projectiles.

(C) The other two complementary projects demonstrated similar "spin-offs." In the electronic counter-countermeasures (ECCM) for electronic fuze projects, workers achieved a great improvement in the ECCM resistance of new solid state variable

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AMCRD Historical Summary, FY 1969, pp. I-4, I-6, I-7, I-18, II-10, III-2, III-8, V-14.

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150

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time (VT) fuzes by the redesign of their detection circuits. They also developed compact acoustic delay lines for radar fuzes that made possible complex correlation and frequency stabilization circuits. The final complementary project, the instrumentation, measurement, and simulation for electronic fuze project, focused upon the development of equipment and techniques for the inexpensive laboratory testing of fuze performance. Workers on this project produced a variety of side products, including improved subassemblies for in-flight telemeters, a shock tube simulator capable of simulating re-entry velocities of mach 20, a wide-band jammer that simulated the more common environments that fuzes faced, and a 2-inch air gun that measured fuze function parameters under simultaneous conditions of spin and set-back.²¹

(U) Materials

Ceramic and Plastic Armor

Probably because of the demands of the Vietnam struggle, the R&D program devoted considerable emphasis to the development of a shield for the ballistic protection of Army aircraft, aircrews, passengers, and cargo against hostile small arms fire. Developers found ceramic armor to be of great value because it provided aircraft with some defense without being prohibitive in weight. Consequently, during Fiscal Year 1969 workers sought to maximize

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AMCRD Historical Summary, pp. II-7, II-13, IV-10, IV-11.

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the ballistic and physical properties of existing armor and to develop new kinds of such armor. Results of their efforts included the production of new ceramic materials and the introduction of a new plastic armor material that added a new means of projectile arrest. Consequently, in December 1969, AMC was able to deliver 46,000 variable armor systems for operational use in Vietnam. These systems consisted of ceramic fiberglass composite armor plates that provided wearers with protection against grenade, mortar, and shell fragments, as well as against .30 caliber ball ammunition at 100 yards.

22

Other Material Developments

AMC made significant developments in other types of materials. The major characteristics of this other research were the varieties of efforts it entailed and the products it produced. The Army Materials and Mechanics Research Center for instance, engaged in materials research for the purpose of developing forged materials that could be used in artillery shells. On the basis of its work in Fiscal Year 1969, the Center invented a series of high-silicon content steels that provided as many as six times the number of fragments as conventional shells. Applied to mortars, grenades, and rocket warheads, the new steels contained no strategic elements and were readily adaptable to fabrication.

Two other noteworthy developments were a fragment-resistant

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(1) Ibid., pp. 55,63. (2) [Ed.], "Body Armor," Army Digest, Vol. 24, No. 2, Feb 1969, p. 31.

glass and a hot isostatic pressing technique. The former involved the development, fiberization, weaving, and the molding of a low modulus glass that, either used solely or with reinforcing material, proved superior to other types of glass in resisting fragmentation. The latter pressing techniques processed fine-grained, high-density ferroelectric ceramics in order to develop high dielectric constant materials for use as electronic components. Testing indicated that the materials that underwent this process contained far more desirable electronic properties than did materials that were fired in conventional kilns.

U.S.-Foreign Materials Research Cooperation

AMC was involved in a number of materials projects in which American allies participated. These projects, which were in various stages of progress, included: first, the U.S.-Canadian Defense Development Sharing Project on ceramic armor materials; second, the U.S.-Canadian Cooperative Research on Materials for penetrating ammunition, in negotiation; third, a U.S.-United Kingdom cooperative research on lightweight rolled steel and aluminum armor, also in negotiation; and fourth, the U.S.-Italy Cooperative Research effort in metals, initiated by the signing on 31 July 1968 of a Memorandum of Understanding between the U.S. Department of Defense and the Italian Ministry of Defense.

23

(1) AMCRD Historical Summary, FY 1969, pp. III-6, IV-6, IV-14, IV-15. (2) [Ed.], "U.S.-Italy Memo of Understanding Initiates Cooperative Metals Research," Army R&D Newsmagazine, Vol. 9, No. 10, Nov 1968, p. 9. (3) For an overall view of the DOD metals program, see Jerome Persh, "Department of Defense Armor Materials Program," same, Vol. 10, No. 3, Mar 1969, pp. 2,24.

Fuel Cells

The major effort in fuel cell research in Fiscal Year 1969 began with the signing of a memorandum of understanding between the United States and the United Kingdom on 15 November 1968. Designed to achieve a combination of efforts, in order to better understand the basic processes involved in fuel cell systems, the bi-nation project sought to make the fuel cell economically practical. The reason for this was that the fuel cell had certain advantages over existing electrical power generating devices, such as quietness, cleanliness, and efficiency. Researchers decided to concentrate on a decrease in the weight and volume and the electrochemical and physical parameters that influenced the generation of electrical power.

AMC fielded several new fuel cells in Fiscal Year 1969. Of these cells, two were intended for field use. One, which employed a solid fuel to produce hydrogen which was converted into electricity, was a hand-sized unit that could power equipment, such as compact field radar and radio sets for as long as 8 hours. The other fuel cell was designed for similar usage. In the advanced development stage, the quiet running prototype unit, which was inaudible at 50 feet, operated for 5 days unattended. Other fuel cell developments included what developers hoped would be the first self-sustaining molten carbonate fuel cell, which provided a 15-kw power plant. Tests conducted upon the prototype units,

however, found that it was twice the desired size and had one-half
24
of the desired power.

Other Power Sources

AMC also devoted no small part of its energies in Fiscal Year 1960 to the advanced engineering development of existent power sources. While most of this development concerned such fundamental areas as efficiency improvement, some attention was directed towards special problems. Within a reliability program for engine generators, for example, the need arose not only for an efficient generator, but also for a quiet one. Accordingly, while engineers sought to improve such conditions as the high failure rates, the short life, and the low reliability of engine generators by means of improved components, such as solid state ignition systems, AMC also worked to introduce a new, quiet-
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running family of 5kw and 10kw diesel powered generator sets.

Another example of the concurrent improvement of existing equipment and the introduction of new items occurred in military

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(1) AMCRD Historical Summary, FY 1969, p. III-6. (2) [Ed.], "ECOM Evaluates Light Power Source," Army R&D Newsmagazine, Vol. 9, No. 7, July-Aug 1968, p. 16. (3) "MERDC Tests Prototype Unit of Molten Carbonate Fuel Cell," ibid., Vol. 9, No. 9, Oct 1968, p. 31. (4) "U.S., U.K. Sign Fuel Cell Research Pact," ibid., Vol. 9, No. 11, Dec 1968, p. 1. (5) "560-W Hydrocarbon Fuel Cell Developed for Quiet Operation," ibid., Vol. 9, No. 11, Dec 1968, p. 17. (6) For a good overview of present thought on electrical systems for Army vehicles, see Alexander M. Karchon, "Trends in Military Vehicle Electrical Generating Systems," ibid., Vol. 9, No. 9, Oct 1968, pp. 34-35.

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AMCRD Historical Summary, FY 1969, p. V-28.

vehicle battery developments. Better designs and the use of different materials, such as plastic, increased the life and power of existing models; meanwhile, engineers developed a standard-sized nickel-cadmium battery that functioned well under extreme variations in climatic conditions. In practice, this apparently dual effort produced similar results, that is, when engineers altered current items by means of parts replacement to a sufficient extent, their work created a new product.

26

(C) Explosives and Propellants

Missile Propellants

(U) The AMC validated several new propellants for rockets and missiles in Fiscal Year 1969. Among those validated were: casebondable smokeless propellants with an overall deliverable specific impulse of 170 seconds, which offered a significant improvement over existing smokeless motors in the HONEST JOHN and LITTLE JOHN; composite propellants with burning rates of 6-inches per second at 2,000 pounds per square inch, which were intended for the Advanced LAW; hydroxy terminated polybutadiene propellants, which were cheaper and were superior in many important properties to the carboxyl terminated polymer propellants in use in the SAM-D and the Multiple Rail Rocket System; and solid gas generator propellants that employed ethyl acrylate as a binder. Tests with

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Joseph Reinman, "Trends in Military Vehicle Batteries," Army R&D Newsmagazine, Vol. 10, No. 1, Jan 1969, p. 25.

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these final developments indicated that researchers had discovered a low-cost casebondable propellant that offered the flexibility of varying flame temperatures. They tentatively scheduled it for advanced development in Fiscal Year 1971.

(C) The most significant accomplishments in the development of missile propellants occurred in the missile liquid propulsion projects area of technology. Project workers achieved several validations of their efforts in Fiscal Year 1969. One prominent development was that of a cheap Chemi-Thermo Bed Gas Generator that offered an on-demand type pressurization of the propellant expulsion systems of those missiles that required a stop-start capability. Other developments included high efficiency engines that featured shortened combustion chambers and gas injection throttling, more reliable propellant feed systems; and lightweight materials that lessened the propulsion burden with their inclusion

27

in building components.

Missile Warheads

(U) Together with the new propellants, the RDTE program developed more complex and destructive warheads to complement the increased speed of future missiles with an increased deadliness. One of these warheads, which was designed for high performance, self-guided, antitank missiles, consisted of a tandem liner, shaped charge configuration that removed sensor equipment without lowering operating efficiency. Another warhead, which was

157
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intended for use as a missile [REDACTED] comprehended a small quantity of explosive that was fitted into an implosive fragmentation lethal mechanism. Tests indicated that this system could inflict heavy damage upon armored vehicles.

(U) AMC Laboratory System and Deputy for Laboratories

All of these accomplishments only provided some indication of the vast range of the AMC's developmental interests; they did not detail the thousands of products that these interests produced. They did not, for instance, describe the remarkable program for the creation of a novel lightweight, powerful artillery system.²⁸ Other programs functioned with similar results, and the AMC turned out a variety of items, ranging from heart pumps to compact space foods to jungle boots.

The functional apparatus that attempted to encompass all of the new advances in technological techniques and equipment was the AMC laboratory network. Each major subordinate command maintained its own laboratories in order to conduct research and development in support of its assigned mission and commodity category. There were 17 laboratories, whose overall direction came from AMC Headquarters. In addition, AMC had six in-house central laboratories/centers—Aberdeen Research and Development

28

(1) Robert G. McClintic, "Army Artillery Slims Down," Army Digest, Vol. 24, No. 5, May 1969, pp. 28-29. (2) AMC Command Information Topics, 13 May 1969. (3) AMC Command Information Topics, No. 3-69A, 14 May 1969. (4) AMC Command Information Topics, No. 3-69B, 14 May 1969. (5) AMC Command Information Topics, No. 3-69C, 14 May 1969.

Center, the Materials and Mechanics Research Center, the Harry Diamond Laboratories, Natick Laboratories, the Aeronautical Research Laboratories, and the Army Materiel Systems Analysis Agency. The programs of these laboratories/centers concerned topics as varied as missiles and health physics, as well as those in between on the military interest spectrum.

These six laboratories/centers functioned under the Deputy for Laboratories, a post that was created in January 1966 with the concurrence of the Assistant Secretary of the Army, Research and Development; the Army Chief of Staff; the Chief of Research and Development, DA; and the Commanding General, AMC. The late Dr. J. Tol Thomas, the first Director (the Deputy for Laboratories was then known as the Director for Research and Laboratories) acted in the direct line of authority for the Commanding General, AMC, and he exercised staff responsibility for the technical quality and the effective operation of the AMC research and development program conducted in the laboratories of the major subordinate commands. In addition, the Director represented the Commanding General, AMC, in direct communications with the Office of the Chief, Research and Development, DA, and with the Office of the Assistant Secretary of the Army (R&D) on those matters which concerned the in-house programs that AMC had underway.

Dr. Thomas and his successor, Dr. Robert B. Dillaway, conducted a systematic attempt to improve both the management and the

²⁹
[Ed.], "AMC—The Army Giant Logistics Command," Armed Forces Journal, 3 May 1969, p. 13.

³⁰

AMC Historical Summary, FY 1966, pp. 541-543.

standards of R&D. The Deputy gave managerial and technical supervision, direction for the in-house laboratory work, and overall guidance to the whole laboratory network in the utilization of resources, funds, facilities, and personnel. By means of these responsibilities, the Deputy attained constant general knowledge of the activities of the whole laboratory complex, and thereby was able to make an evaluation of its performance. The evaluations then lead to his formulation and implementation of different laboratory policies, to improve the caliber of scientific and technical research, with special emphasis on that research which³¹ the command considered most important.

During the 2d quarter, Fiscal Year 1969, by designation of the Commanding General, AMC, the former Deputy for Research and Laboratories became the Deputy for Laboratories. The new organization began its administrative operations with an immediate staff reorganization, a consequence of a reduction in authorized strength from 26 to 14. Another significant organizational change directed the Chief Scientist to report to the Deputy for Laboratories. Despite these changes, the mission of the Deputy for Laboratories remained the same.

The Deputy for Laboratories experienced a major jurisdictional change in Fiscal Year 1969. This change was the transfer of the U.S. Army Terrestrial Sciences Center (TSC) at Hanover, New Hampshire,

³¹
[Ed.], "AMC Selects Dr. Dillaway Deputy for Laboratories," Army R&D Newsmagazine, Vol. 10, No. 1, June-July 1969, p. 9.

on 1 July 1969, from AMC to the jurisdiction of the Chief of Engineers. AMC retained the Photographic Interpretation Division of the Center, and transferred this unit to the Night Vision Laboratory of ECOM. This transfer occurred because of a conflict in missions between the TSC and AMC. The former dealt with terrain, like OCE, and the latter dealt with materiel.

32

Two other actions of significance affected the operations of the Deputy for Laboratories in Fiscal Year 1969. The first of these actions took place when the Department of Defense (DOD) was asked to return an AMC-submitted program change request for the establishment of an Air Mobility Research and Development Center, so that the AMC might have time to restudy the previously chosen site at Weldon Springs, Missouri. The Deputy for Laboratories acquired the responsibility from the Commanding General, AMC, to prepare another plan for this Center, in conjunction with the National Aeronautics and Space Administration (NASA), that would allow both NASA and AMC to share the facilities. The Deputy for Laboratories had not completed this plan as of 30 June 1969. The other action was a directive to the Deputy for Laboratories for the establishment and activation of a Small Arms Systems Agency to provide intensive management for all AMC small arms programs, with the exception of the M-16 rifle. The Deputy for Laboratories constructed such an organization, and prepared a letter of

32

(1) Deputy for Laboratories Historical Summary, FY 1969, p. 1. (2) [Ed.], "Engineers Regain Control, Restore Name of CREEL," Army R&D Newsmagazine, Vol. 10, No. 6, June-July 1969, pp. 1,6.

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instruction for the commander. The unit became operational in the 2d quarter, Fiscal Year 1969, at Aberdeen Proving Ground, Maryland.

(U-FOUO) Research and Development
Program and Funding

(U) By 30 June 1969, the RDTE released funds totaled \$992.5 million. Of this sum, \$8.5 million came from prior year program authority that had been withdrawn to finance high priority requirements. By category or function, \$34.9 million, or 3.59 percent, of these Fiscal Year 1969 funds went to research; \$26.8 million, or 2.76 percent, went to exploratory development; and the remainder, or bulk, of the funds went to such categories as advanced development, engineering development, management and support, and operational developments.

(U-FOUO) AMCRD considered its released funds to be far from adequate, and it requested gradual increases in its fiscal allotment in its Five Year RDTE Program for Fiscal Year 1970-74, that it submitted to the Chief of R&D, DA in April 1969. The Chief, R&D, approved, after several changes in guidance and program approval, the following amounts for those 5 years, as of 1 June 1969:

33

Deputy for Laboratories Historical Summary, FY 1969, p. 1.

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Fiscal Year	Funding (thousands \$)
1970	1,051,304
1971	1,406,018
1972	1,494,789
1973	1,457,700
1974	1,384,940

(U) The Fiscal Year 1970 and subsequent year appropriations that the Chief of R&D had approved were yet subject to many possible vicissitudes. Actions that might require changes in funds included the review and approval of the program by DOD Research and Engineering, final Congressional actions, and Executive apportionment decisions. Barring sudden changes, the AMC Fiscal Year 1970 RDTE Program consisted of 418 active DA projects. The Directorate established 32 new projects, restructured 10 projects into 12 new ones, and terminated eight others.

RDTE Customer Program

(U) The AMC RDTE Fiscal Year 1969 customer program processed 1,584 separate actions on non-AMC RDTE Customer Orders for a total of \$99.6 million. Many orders or amendments to orders from various customers were involved including the Advanced Research Project Agency (ARPA), the Defense Atomic Support Agency (DASA), NASA, the Air Force, the Navy, the Atomic Energy Commission (AEC) and a host of other government agencies, including such non-defense agencies as the Post Office Department and the Department of Agriculture. Like most AMC endeavors, the RDTE Customer Program was expected to do more with less; its actions increased 141 percent over those of Fiscal Year 1968 while its dollar level dropped \$.3 million below that of the previous year.

(U) Coordination, approval, and recording of actions and decisions in regard to these tasks and projects were tasks of the AMC Technical Committee, which it accomplished by the application of uniform methods in RDTE-type classification and other decisions that related to materiel. During Fiscal Year 1969, the committee considered 816 agenda items, including 457 that concerned type classification or reclassification of materiel. This 816 total was 64 more than the 752 it had considered in Fiscal Year 1968. Of these total items, 808, including 456 in the type classification or reclassification area, were approved or recorded and eight were withdrawn. Of all the items that were considered, one was expedited by handcarried correspondence, all of the rest were dealt with at one of 12 meetings that were scheduled in that fiscal year. Twenty-one of the type classification actions concerned ENSURE³⁴ items that were intended for use in SEA.

(U) Test and Evaluation

Mathematical Review Office

In a most significant action, the AMC set out to improve its scientific and technological review effort by the establishment of a mathematical review office within its own headquarters. The original purpose of this office, which was established by the

34

(1) AMCRD Historical Summary, FY 1969, pp. I-1, I-2. (2) For the AMC Technical Committee, see AR 705-5, 15 Oct 1964, subj: Research and Development of Materiel and AR 705-9, 14 May 1965, subj: Research and Development of Materiel, Technical Committee Functions.

Test and Evaluation Branch, Engineering Division, AMCRD, was to improve the mathematical quality of reports within the test and evaluation area. This purpose was extended, however, to include an overall effort for the development of a high level of mathematical expertise throughout AMC and its major subordinate commands. As a consequence, in April 1968 this office took form as the Office of the Chief Mathematician. During Fiscal Year 1969 the office reviewed test plans and reports, QMR's, and System Development Plans (SDP's), and made comments upon the methods by which researchers had drawn inferences from statistical data. Moreover, the office coordinated with the methodology divisions within the major subordinate commands on data analysis, and successfully aided the total AMC effort in regard to the solution of certain field problems.

Improved Test Procedures

The Test and Evaluation Branch, AMCRD, made several efforts to improve testing procedures, techniques, and equipment in Fiscal Year 1969. Among the efforts that it validated were: the employment of a mobile closed circuit television system, first used to record the Engineering Design Tests of the 500-pound controlled Airdrop Cargo System; and the initiation of computerization in TECOM's Test Evaluation Analysis and Management Uniform Plan (TEAM-UP), which was a part of the National Automated Data Processing Program for AMC Logistic Management (NAPALM). The branch expected that this endeavor would enable TECOM to handle an increasing complexity and volume of scientific and engineering

work; to modernize the Command Control System and make it more responsive; to equate the management systems of TECOM with those AMC and higher echelon commands; and to fulfill all of TECOM's ADP requirements while providing an additional capability for expansion and modernization.

Other technological and management improvements in test and evaluation included a unified report, prepared by an Electronic Accounting Machine (EAM) facility, that presented test and test support data for the R&D aircraft test program; and two new technological devices to aid in the missile test program. The first of the latter two included the initial application of an automatic tracking telescope, which enabled observers to capture previously unavailable data for test and review purposes, such as photographs of the high-performance SPRINT missile in the near-launch stage of flight. The second was the award of a contract for initiation of construction, subject to approval of the Determination and Findings, of a prototype laser missile tracking instrument. The device was expected to aid in solving current problems in the acquisition of real-time flight data in near launch phases of flight.

Deseret-Dugway Merger

The merger of Dugway Proving Ground and the Deseret Test Center on 1 July 1968 was noteworthy. Long the subject of

discussion, the merger was promoted by the many duplications of
facilities and services at the two adjacent posts.³⁶ The con-
solidated post became known as the Deseret Test Center, a joint
activity that reported to the Joint Chiefs of Staff (JCS) through
the Chief of Staff, Army. The technical operations of the center
were under a project manager who reported through the Commanding
General, TECOM, under a tri-service agreement.³⁷

(U) Managerial Developments

The business of the AMC RDTE program was both the satis-
faction and the anticipation of Army needs in advanced weapons
systems and related equipment. Consequently, the policy makers
attempted to establish certain patterns of management behavior by
which it could keep abreast of both technological advances and
logistical demands of the Army. Fortunately, AMC had several tools
to employ towards these ends. These tools included a DA management
model, which was a result of the Brown Board Report. This model
consisted of a functional flow 238-block diagram. The blocks
showed the interfaces and outlined the steps that the large Army
systems followed during their life cycles.³⁸ Another tool was the
defined relationship of the Deputy for Laboratories and the in-
house laboratories and other research operations, by which the

³⁶

AMCRD Historical Summary, FY 1967, p. 55.

³⁷

AMCRD Historical Summary, FY 1969, p. VIII-2.

³⁸

AMCRD Historical Summary, FY 1967, p. 63.

Deputy exercised supervisory control and provided guidance while simultaneously exploiting fully specialized knowledge by means of concentrating skills and allowing the optimum use of initiative.

Yet another tool for the AMC RDTE effort was the planned establishment of goals. The formulation of goals followed a requirement for operational capability objectives that the Army had set forth during Fiscal Year 1967. From that year forward AMC participated with the CDC in the planning of such objectives for the Army. This joint effort, as had all AMC RDTE management, followed a specific format. After the two commands had agreed upon some proposed objectives, they forwarded them for staffing within their respective organizations, and then for further staffing by the Assistant Secretary of the Army (R&D) and OCE. If approved, the Army expected these operational capability objectives to provide goals for planners in doctrine, organization, tactics, and development, and also guidance in research and exploratory development. The results of all of this adherence to models and forms were thought of as total capability objectives and were intended to meet the needs of the Army in the field for a long time frame.

39

AMC made several efforts in Fiscal Year 1969 to further improve their planning efforts. One example was the development of a new priority system for preparing QMDO plans. The rationale

39

AR 705-5, C2, June 1966, subj: Army Research and Development.

for this system was to use the 14 materiel objectives in the Army Strategic Plan (ASP) as a basis for QMDO planning priorities. The ASP listed its materiel objectives in the order of importance. QMDO planners felt that this rating order was superior to the I, II, and III priorities that DA currently assigned to QMDO's. AMC took tentative steps to test this novel approach.

Other planning effort improvements involved a better procedure for approval of updated QMDO plans; a new regulation on QMDO management that described policies and procedures that were applicable to all AMC activities during the QMDO phase of a materiel life cycle, and a seminar, conducted in conjunction with the CDC, that concerned Operational Capability Objectives (OCO). The Science and Technology Division participated in behalf of the directorate at the first seminar, held in December 1968. Although the parties at this meeting generally limited discussion to an air mobility theme, their meeting was but a prelude to further assemblies. This was pursuant to an agreement between the Deputy Commanding General, CDC, and the Deputy Director of Research and Laboratories, AMC, which stated that there should be communication between the AMC and the CDC relating to particular R&D efforts designed to meet existing or proposed OCO's. Accordingly, both commands agreed to more meetings; the next one, which was to deal with surface mobility, was to be held at Fort Knox, Kentucky, in July 1969.

40

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- (1) AMCRD Historical Summary, FY 1969, pp. VIII-12, VIII-14.
(2) AMCR 70-41, 18 June 1969, subj: Qualitative Materiel Development Objective (QMDO) Management.

Having fulfilled current planning requirements, AMC turned to preparing plans for Army R&D needs for some 20 years into the future. The command satisfied this need by preparing the Army Long Range Technological Forecast (ALRTF). When completed, the ALRTF was in the format of a report with more than 1,100 pages and divided into three volumes. Within it, forecasters described the knowledge, capabilities, and examples of materiel that they expected that science and technology could be expected to produce within the next 20 years. Drafters updated and improved the Forecast on a continual basis, and so enabled operational planners in the combat developments system to use this document. In addition, to these users, the Forecast also was utilized by the Joint Staff, the Navy, the Air Force, and other governmental agencies. During Fiscal Year 1969, major revisions were made in 41 14 chapters of the Forecast.

Another means by which the AMC attempted to anticipate future R&D needs was its participation in the Army 85 Concept Follow-On Studies. The AMC accomplished this participation by arranging for the Science and Technology Division to serve as a contact point and coordination office for the Army 85 Studies. During Fiscal Year 1969, the major effort of the division centered on the preparation of the official AMC reply to the CDC Institute of Advanced Studies at Carlisle Barracks, Pennsylvania, in relation to the Institute's draft on the Army 85 studies. The division made

41

AR 705-5, 15 Oct 1964, subj: Army Research and Development.

several suggestions for further CDC action in a number of areas
of the study, especially in regard to the proper selection and
restriction of QMDO's.⁴²

All R&D technological products discussed within this chapter
centered on the individual soldier for all of the products sup-
ported him, either directly or indirectly. Increased mobility
and firepower and better communications characterized the latter
type of support. This included a wide variety of individual
equipment, ranging from protective armor to a lightweight long
range patrol food packet. Thus AMC endeavored to meet the soldier's
basic needs in recognizing him as the Army's most important asset.⁴³

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AMCRD Historical Summary, FY 1969, p. VIII-15.

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(1) Speech by GEN William C. Westmoreland, CofS of the Army, before US Army Natick Laboratories and New England Chapter, Defense Supply Association, Natick, Massachusetts, 24 June 1969, subj: The Army-Industry Team. (2) Dr. S. J. Kennedy, "Advances in Clothing and Textiles Through Army Research and Development," The Review, Vol. 48, No. 6, May-June 1969, pp. 41-42, 80-87.

CHAPTER V

(U) PROCUREMENT AND PRODUCTION

Procurement in Support of SEA

Matters related to support of Southeast Asia (SEA) continued to demand and receive urgent treatment during Fiscal Year 1969. A number of actions relaxing procurement controls were continued from prior years. These included the authority to heads of procuring activities to authorize blanket deviations to the AMC Procurement Instruction (AMCPI) with after-the-fact reports to AMC; reduction in the number of Board of Award actions by increasing the minimum threshold to proposed awards to cases of over \$100,000; continued reliance on the use of letter contracts to shorten procurement and production leadtime; and continuation of increases in dollar limitations for procurements made under small purchase procedures. Simplified procedure for purchase of supplies and non-personal services costing between \$2,500 and \$10,000 was continued.

Procurement Volume and Trends

Funds placed under contracts were substantially lower than that for either Fiscal Year 1968 or Fiscal Year 1967. The value of Fiscal Year 1969 procurements, involving all types of funds, amounted to \$8.8 billion. This represented a decline of \$1.1 billion from the record high in Fiscal Year 1968 of \$9.9 billion

and reversed the upward trend of the preceding 3 years. Total actions, excluding intra-governmental and Foreign Military Sales (FMS), were down from 843,000 in Fiscal Year 1968 to 784,000 in Fiscal Year 1969. Awards of \$10,000 or more fell off from 33,000 to 31,375. This reflected a general across-the-board curtailment of military expenditures for the year. The Fiscal Year 1969 level of procurement remained more than double the dollar value of AMC procurements during the pre-SEA buildup in Fiscal Year 1964 and Fiscal Year 1965, when AMC procurements amounted to approximately \$4 billion annually.

AMC Fiscal Year 1969 procurements accounted for 70.4 percent of total Army procurements of \$12.9 billion. In contrast, AMC Fiscal Year 1968 procurements were 75.1 percent of the Army's total of \$13.1 billion.

Competitive Procurement

Fiscal Year 1969 year-end competitive performance was 25.1 percent of the total funds placed under contracts, the lowest level since the activation of AMC in Fiscal Year 1963. This situation was due to the urgency of SEA requirements, which continued to effect the ability of purchasing offices to place procurements competitively. This was brought about partially by insufficient leadtime for purchasing offices because of early delivery dates imposed by the requirements activities. This dictated contract placement on an emergency basis. Another factor was the necessity of making follow-on awards to suppliers

already in production to prevent an interruption in deliveries to meet SEA urgencies. Follow-on procurements from existing producers were not credited as competitive procurements even though the initial contract awarded to the producer may have been on a competitive basis.

Missiles, aircraft and spares, and ammunition procurements, including the operation of government-owned, contractor-operated (GOCO) ammunition plants were the greatest factors in depressing the rate of competition in AMC procurements viewed in the light of an overall reduction in Fiscal Year 1969 procurements exceeding \$1 billion. These were commodities with a low potential for competitive procurement. The major part of the reduction in Fiscal Year 1969 was made in those commodities with a potential for a high degree of competition, such as commercial passenger carrying vehicles and trucks up to 10,000 pounds gross vehicle weight, electronics items, general purpose military vehicles, and construction equipment. The following summary illustrates the impacts described above. (Shown on next page.)

The downturn in the "all other" category from 43.78 percent to 43 percent was wholly attributable to increased non-competitive procurement of weapons. Volume in Fiscal Year 1969 decreased to \$415 million from \$524 million in Fiscal Year 1968 and the rate of competition decreased from 31.9 percent to 23.0 percent.

Commodities	FY 1968			FY 1969		
	Total procure- ment	Competi- tive pro- curement		Total procure- ment	Competi- tive pro- curement	
	(\$ mil)	(\$ mil)	%	(\$ mil)	(\$ mil)	%
Aircraft and spares	1,532.6	112.6	7.3	1,270.9	61.4	4.8
Ammunition (all)	3,492.9	724.0	20.7	3,549.4	688.3	19.4
(GOCO plants only)	(1,708.8)	(0.0)	(0.0)	(1,788.9)	(0.0)	(0.0)
Missiles	720.0	81.4	11.3	777.1	78.8	10.0
Sub-totals	5,745.5*	918.0	16.0	5,597.4**	828.5	14.8
All other	4,128.8	1,810.0	43.8	3,208.5	1,380.5	43.0
Total AMC	9,874.3	2,728.0	27.6	8,805.9	2,209.0	25.1

*Represents 58.2 percent of Fiscal Year 1968 total procurements.

**Represents 63.3 percent of Fiscal Year 1969 total procurements.

The following summary shows a comparison of Fiscal Year 1969 over-all competitive performance with that of Fiscal Year 1968:

Fiscal Year	Contract Awards	Competitive Contracts	
	(\$ mil)	(\$ mil)	(%)
1969 (12 mo.)	8,805.9	2,209.0	25.1
1968 (12 mo.)	9,874.3	2,728.0	27.6

Formal Advertising

Procurements placed by formal advertising during Fiscal Year 1969 amounted to \$780.7 million, which was \$132.5 million short of similar awards, in Fiscal Year 1968. The Fiscal Year 1969 awards amounted to 8.9 percent of total procurement dollars placed under contracts, which was slightly less than the 9.2 percent achieved in Fiscal Year 1968 and short of the goal of 11 percent assigned by DA at the outset of the fiscal year. The shifts and increases in types of commodities procured, which lowered competitive performance, exerted a similar adverse effect on advertised procurements. A more direct impact on formal advertising performance resulted from the transfer of procurement of commercial-type passenger carrying vehicles and certain trucks up to 10,000 pounds gross vehicle weight from the Tank-Automotive Command (TACOM) to the General Services Administration (GSA) under the Single Manager concept. Previously, procurement responsibility for all Department of Defense (DOD) requirements of these vehicles (sedans, carryalls, pickups, and certain classes of busses) was assigned to TACOM. During the fiscal year, nearly \$55 million for procurement of these vehicles for DOD by advertising, normally awarded by TACOM, was transferred to GSA for procurement. The following summary shows a comparison of formal advertising performance for Fiscal Year 1969 with that of Fiscal Year 1968.

Fiscal Year	Procurement placed under contract	Formal Advertising	
		(\$ mil)	(%)
1969 (12 months)	8,805.9	780.7	8.9
1968 (12 months)	9,874.3	913.2	9.2

Incentive Contracts

During this year the use of incentive arrangements in contracts showed a decline. Procurement dollars subject to incentive contractual provisions amounted to 15.6 percent as compared to 17.8 percent in Fiscal Year 1968. A total of 135 incentive-type contracts were utilized during Fiscal Year 1969 which represented a net value of \$1,375.6 million as compared to 182 contracts valued at \$1,756.3 million during Fiscal Year 1968.

Cost-Plus-Fixed-Fee Contracts

DA statistics for Cost-Plus-a-Fixed-Fee (CPFF) Contracts contracting in Fiscal Year 1968 included amounts awarded on a Cost-Plus-Award-Fee (CPAF) basis. During that year, CPFF awards totaled \$1,915.3 million or 20 percent of the total procurements. Of this amount, \$625.7 million was of the CPAF type and had been excluded in the comparisons. As adjusted, CPFF performance for Fiscal Year 1968 was \$1,262.6 million or 13.2 percent of total awards of \$9,570.5 million as shown in the following summary.

The value of Fiscal Year 1969 CPFF contract awards totaled \$1,182.2 million or 13.9 percent of the total procurements under

contracts. This performance was slightly less favorable than that achieved in Fiscal Year 1968 when CPFF awards amounted to 13.2 percent (\$1,262.6 million) measured against the total Fiscal Year 1968 awards.

The slight shortfall in Fiscal Year 1969 was attributable to the increased level of activity at GOCO ammunition plants concerned with the manufacture of explosives, propellants, and the loading and assembly of ammunition components into completed rounds. Funding of work at GOCO plants on a CPFF basis amounted to \$857.4 million in Fiscal Year 1969 as compared to \$730.9 million in Fiscal Year 1968, an increase of \$126.5 million. Under certain circumstances, CPFF contracting for operation of GOCO ammunition plants was the most appropriate contractual arrangement. Allowing for the unavoidable increase in operations at these GOCO plants, CPFF performance in Fiscal Year 1969 showed the following improvement over Fiscal Year 1968:

Fiscal Year	Contract Awards (\$ mil)	CPFF	
		(\$ mil)	(%)
1969	8,396.0	1,055.7*	12.6
1968	9,570.5	1,262.6**	13.2**

* Adjusted to exclude \$126.5 million increase at GOCO plant level of operation.

** Adjusted to exclude CPAF contracts as explained above.

The following summary compares Fiscal Year 1969 CPFF performance with that of Fiscal Year 1968:

Fiscal Year	Contract Awards*	CPFF*	
		(\$ mil)	(%)
1969 (12 mo.)	8,522.5	1,182.2	13.9
1968 (12 mo.)	9,570.5	1,262.6	13.2

*Measured only on procurement actions of \$10,000 and over.

Defense Contractor Cost Reduction Program

The objective of the Defense Contractor Cost Reduction Program was to motivate contractors and seek their support in a sustained and positive effort to reduce the cost of DOD procurement. During the year, the Defense Contractor Cost Reduction Program was revised to provide a system of recognition of contractors formally enrolled in the program. DOD established two certificates for presentation to eligible contractors, as follows:

Achievement Award—to recognize those contractor reporting units (usually at plant level) whose cost reduction programs had been evaluated affirmatively by a DOD monitor for a period of 2 consecutive years, subsequent to 1 January 1967.

Outstanding Program Award—to recognize those contractor reporting units who had received an achievement award and whose programs had been evaluated as outstanding for a subsequent year.

The Assistant Secretary of the Army (I&L) confirmed his earlier designation of AMC as the Executive Agency for the Army implementation of the program. As a result the Procurement and Production Directorate (AMCPP) prepared AR 11-40, dated 9 April

1969, which contained the DOD Instruction as the appendix.

During Fiscal Year 1969, the number of Army contractors enrolled in the program remained at 17, involving 21 plant locations. The programs of all but one (Western Electric Company-Safeguard System) were monitored by AMC personnel.

As of 1 March 1969, 16 of the 17 contractors monitored by Army personnel were eligible for the Achievement Award. Secretary of the Army Stanley R. Resor approved achievement certificates for 15 contractors, representing 17 plants.

The 17 Army contractors in the program reported savings of \$103.5 million during the 12-month period corresponding to Calendar Year 1968. This savings represented 3.8 percent of the total sales of \$2,693 million for the period. This performance compared favorably with savings generated for the preceding 12-month period (CY 1967) of 4 percent of sales of \$1,990 million amounting to \$79.6 million in savings.

Army Contractor Evaluation

Defense Procurement Circular No. 64, of 28 October 1968, authorized an expansion of the Contractor Performance Evaluation Program to include smaller development contracts. A new form was used to evaluate the contractor's performance on development contracts which exceeded \$100,000 but were not within the criteria of the previously established major development program. The DOD Data Bank contained information on the contractor's performance

for 170 corporations or their divisions. There were 1,003 reports on 365 contracts in the data bank.

During Fiscal Year 1969, 19 courses in contractor performance evaluation were conducted for the Army and 541 personnel attended and completed the courses. The chairman of the Army Contractor Performance Evaluation Group (CPEG) continued to be the guest lecturer at the Advance Procurement Course at Fort Lee, Virginia. The workload of the CPEG continued to grow. Workload comparisons between Fiscal Year 1969 and Fiscal Year 1968 were as follows:

	FY 1969	FY 1968
Army contracts within the CPE program	120	98
Semi-annual periodic evaluations made	168	111
Terminal evaluations completed	22	5

Management of Government Property
Assigned to Contractors

During Fiscal Year 1969, new and revised policy guidance to strengthen management controls was placed in effect by OASD (I&L). The thrust of the AMC efforts during this period was directed to compliance with the revised directives and reduction of government-owned facilities in the possession of contractors. The policy relative to providing facilities, including industrial plant equipment (IPE), was stated in stronger terms. Provision was made for uniform identification of equipment and a requirement was established for the contractor to maintain a program for utilization of government property, placing responsibility on the

Government property administrator for assuring effective utilization procedures.

Except for educational or other non-profit organizations, AMC had discontinued the furnishing of equipment costing less than \$1,000. The policy relative to the use of government-owned facilities for commercial work had been revised. There were instances where Government-owned equipment was not used to full capacity for defense work, in which case commercial use could be authorized. However, commercial use of active equipment in excess of 25 percent of time available for use could not be authorized without prior approval of OASD (I&L).

A time-phased program was initiated to update the primary purpose for contractual use of facilities contracts and to include the revised Armed Services Procurement Regulation clauses. This included approximately 250 contracts which were modified and updated prior to 30 June 1969. Also, a comprehensive program had been established to evaluate and assure the adequacy of each contractor's property control system, including the categories of the system, such as acquisition, use, consumption, utilization, and disposition of Government property.

Multiyear Procurements

Use of the multiyear procurement (MYP) technique continued during Fiscal Year 1969 at about the same level as for Fiscal Year 1968. Forty-four new MYP contracts were awarded during the year obligating \$144 million for the first year's requirements.

An additional \$418.3 million was awarded under other MYP contracts in being during the year for annual requirements subsequent to the first year's quantities. In Fiscal Year 1969, a total of \$562.3 million of procurement funds were awarded under MYP contracts compared to \$496.6 million in Fiscal Year 1968.

Cost and Economic Information Office

Selected Acquisition Reports (SAR)

This system was developed during the past year to provide information on major weapon systems for high-level officials, including congressmen. Each report contained the original specifications for cost quantity, scheduling, and performance as stated in earlier agreed upon plans and the current estimates for each parameter. Also given in the report were the reasons for increases and decreases for each of the characteristics. Selected Acquisition Reports (SAR) were originally required for the CHEYENNE and SAFEGUARD systems only, but were expanded in April 1969 to include the LANCE, SHILLELAGH, and SHERIDAN weapon systems. Initial reports for the additional systems were submitted to the Comptroller of the Army on 15 May 1969. In June 1969, the number of Army systems covered by SAR was increased to 10 to include the DRAGON, SAM-D missile, Main Battle Tank-70, and the M60A1E2 tank.

Management Control Systems

During Fiscal Year 1969, the Cost and Economic Information Office was assigned the responsibility for implementation and

control of the Management Control Systems program within AMC.

This program was instituted by DOD through the issuance of DOD
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and Army directives.

The Management Control Systems Program involved the development of new management control systems, the modification of existing systems, and the selection and contractual application of approved systems. Management control systems within the scope of this program, were those relating to all major functional areas that required contractors to respond to management-type information requirements applied to contracts in excess of \$1 million.

Cost Information Reports

Cost Information Reports (CIR) was applied to seven aircraft and two missile weapons systems. Approval was received by letter from the DA, dated 17 June 1969, covering the CIR Data Plan for the SAM-D Missile System. Other weapon systems under review for CIR coverage included the MBT-70, the XM-179 Weapon System, and the XM-800 Weapon System. The TOW Missile System, which had been previously considered was to be withdrawn.

Cost Research

The Research Analysis Corporation (RAC) under contract to AMCPP provided a report entitled "Development of Cost Estimates for the MBT-70 Fire Control System." This report utilized computer simulation procedures in the refinement of engineering

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AR 37-200, 14 Aug 68, subj: Financial Administration,
Management Control Systems for Use in the Acquisition Process.

estimates. A cost estimating relationship (CER) for fuel-cells was being prepared at the U.S. Army Mobility Equipment Command (MECOM). Other CER's were in process at the U.S. Army Munitions Command (MUCOM) and the U.S. Army Aviation Systems Command (AVSCOM). MUCOM completed a report in January on a CER for conventional and high explosive ammunition and in March AVSCOM completed a report on helicopter spare parts.

In addition to the need for the development of applicable research data was a need for maintaining visibility. Two inventories on the known efforts of other practitioners in cost analysis research were prepared. The Cost Estimating Relationship Inventory listed about 25 studies prepared by contractors, in-house, and other government sources with file number of document control numbers and producer organization contact sources. The learning curve inventory listed about 300 learning rates for systems, components, processes, or contracts compiled from the Defense Contract Audit Agency and sources within the major subordinate commands.

Industrial Readiness

Modernization

During Fiscal Year 1969, the U.S. Army Production Equipment Agency (PEQUA) continued in its efforts to provide engineering assistance to AMC. This was utilized in developing a meaningful plant equipment modernization program, including the performing

of engineering studies of facility production equipment needs and operations and assistance on modernization planning.

Several actions restricted the efforts of the Agency from providing all the assistance requested. These were restrictions on travel, in the early part of Fiscal Year 1969, and restrictions on personnel spaces. The latter factor caused the spread of available engineering talent so thin that it became necessary to defer more and more assistance requested by AMC elements.

During the fiscal year PEQUA completed the following engineering studies: Red River Army Depot Plating Shop Study; Red River Army Depot Machinery, Tool & Die, and Heat Treat Shop Study; Sharpe Army Depot Shops Study; New Cumberland Army Depot Shops Study; Sierra Army Depot Shops Study; TACOM (Warren Complex) Shops Study; St. Louis Army Ammunition 105mm Line Study; Lexington-Blue Grass Army Depot Shops Study; and Dugway Proving Ground Shops Study. Also completed were the pertinent portions of the report on a modernization study performed on the Pine Bluff Arsenal shops. In the latter part of the fiscal year, the Agency was directed by Headquarters, AMC, to validate all Fiscal Year 1970 project economic analyses.

Replacement of Equipment Lent from ASOD Packages

During Fiscal Year 1969 PEQUA assisted the major subordinate commands under a continuing program in the replacement of items of industrial plant equipment lent from Assistant Secretary of

Defense (ASOD) packages. Records of general reserve equipment were screened at the Defense Industrial Plant Equipment Center (DIPEC) to identify and locate suitable equipment for these replacements. In 59 instances, where an item of equipment had been lent from an ASOD package for use in current production, equipment was found in the general reserve for filling these voids in packages. This equipment had an acquisition value of more than \$1,065,993.

Management of Defense-Owned
Industrial Plant Equipment

At the direction of the Assistant Secretary of Defense,
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Mr. Thomas D. Morris, a joint task group of military service, DSA (Defense Supply Agency), and DIPEC representatives convened in November 1968 to develop plans and procedures for accomplishing management of industrial plant equipment. A representative of PEQUA was assigned to this task group. Accomplishments of the group were the preparation of a time-phased plan for implementation, the establishment and assignment of responsibilities to the sub-task groups to create detailed time-phased plans for implementing their assigned functions.,

Engineering Assistance on Plant
Clearance and Layaway

During the fiscal year there were six requests from AMC activities for on-site engineering assistance relative to layaway

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Memorandum, ASD (I&L) to CG, AMC, 4 June 1968, subj: Management of Defense-Owned Industrial Plant Equipment.

or disposal of industrial plant equipment. These studies provided scopes and/or cost estimates on plant clearances of lay-away of Government-owned industrial plant equipment which included equipment removal, processing, transportation and storage. The Agency, also, continued to obtain allocations of controlled humidity storage space for activities requesting such space for equipment being laid away for mobilization requirements.

There were 240 active manufacturing method and technology (MMT) projects needed to support the production base. As depicted in the Five-Year Plan, it was anticipated that the level of effort would approach \$55 million within the next 5 years. Some of the projects that were showing great promise are as follows:

AMC Numerical Control Working Group. This group was composed of the numerical control coordinators from each major subordinate command and numerical control installation within AMC. The primary mission of the group was to provide a mechanism for technology interchange while reviewing current state-of-the-art developments. Additionally, there was a mutual review of production base project submissions relative to numerical control technological advances in such fields as computer assistance part programing, adaptive controls, computerized manufacturing, and production control was the responsibility of this group. During the past year there was a trend from numerical control to the next logical step, direct computer control.

Project for Production of Monofilament Fiber Aircraft

Components. In order to provide an economical manufacturing process and a broader production base for the manufacture of helicopter components, a manufacturing methods and technology project was prepared by PEQUA for the development of a numerical control tape lay-up machine to build helicopter rotor blades of various fiberglass composite materials.

Helicopter rotor blade procurement was strongly influenced by the complexity of the manufactured article. Design requirements dictated costly and exotic manufacturing processes. Recent changes in blade design concept indicated a more pronounced need for monofilament structure due to the extreme problems in generating the required geometry by metal working methods.

Monofilament fiber composites gave helicopter rotor blades an improved fatigue strength to weight ratio, reduced blade weight, permitted improved fabrication of advanced blade design, and offered improved blade performance. Results of this effort, which were applicable to all Army helicopters, improved the helicopter performance, and insured the safety of the crew. Certain potential procurement advances and a cost reduction of 25 percent was possible by the substitution of monofilament fiber composites for metal structures.

Development of Manufacturing Process for Producing Transparent

Armor. PEQUA prepared a MMT project for producing transparent armor

in sizes suitable for helicopter pilot protection as well as tank vision blocks and armored vehicle windshields. The current military requirement for the production of lightweight transparent ceramic armor resistant to penetration by armor piercing threats could not be met. The determining factors were high costs, size, the lack of a firm production capability, and the inability to procure such items. Through the MMT effort, a single crystal of alumina-aluminum oxide disc was produced. Its tremendous strength made it suitable for transparent armor and its optical properties were better than the visual shields that were being used on Army helicopters. Also, the disc could be used as vision parts in all tactical vehicles.

Boring Lathe Modernization. As a result of this project it was possible to bore a 155mm gun tube with a time reduction of 70 percent. Also, it was possible to bore 105mm gun tubes at the rate of 10 1/2 inches per minute versus 2 inches per minute as previously performed.

Electrolytic Honing of Gun Barrels. A MMT project was underway at Watervliet Arsenal to explore the use of electrolytic honing of gun barrels. PEQUA assisted by going to the contractor's plant (Excello Corp) to discuss the retrofit of a large lathe for this purpose. This technique permitted honing without a temperature rise, and as a result this permitted the honing of gun barrels in a considerable shorter period of time.

Improved Production Methods for Small Diameter Missile/Motor Cases with Integral End Closures. The intent of this project was to evaluate the relationships among small motor case performance requirements, materials, configurations, and production methods; develop improved approaches to production which would permit the qualification of additional sources, obtain a broader production base, and result in lower unit costs and higher production rates; and prepare a process specification for the improved production methods established. This contract was let to the Beech Aircraft Company and interim results appeared very favorable.

Coordination of Manufacturing Technology Programs. An agreement, executed by the materiel secretaries of the military departments, required each service to designate an organizational element to serve as a focal point in connection with the development of a plan for the coordination of manufacturing methods/technology actions. The Manufacturing Technology Advisory Group (MTAG) coordinated the Army/Navy/Air Force efforts in the manufacturing technology field.

The Manufacturing Technology Division of PEQUA was requested to present its operations, in regard to the budget and funding cycle, and to prepare a definition of manufacturing technology as a member of the Army representation. The Navy and the Air Force submitted their operations and it was agreed that the MTAG would meet, prior to the budget hearings, to review common areas of interest; to avoid possible duplications of effort; and to

eliminate unnecessary spending. MTAG was to meet for the purpose of establishing points of communication and for basic coordination³ in accordance with DOD directives.

Small Business Program

During Fiscal Year 1969 small firms were successful in obtaining awards amounting to \$907.9 million or 10.6 percent of the \$8,551.6 million awarded United States business firms in prime contracts.

Certificate of Competency Activity and Status Report

A new report for Certificate of Competency Activity and Status was initiated to keep abreast of those awards of over \$10,000 that were denied small business firms for reasons of nonresponsibility. This new report did not apply to those rewards referred to the Small Business Administration (SBA) for certificate of competency consideration. Referrals were made to the SBA only when the non-responsibility involved capacity or credit. Because of congressional committee interest and inquiries in this area, it was deemed necessary to keep these instances under close surveillance. The report⁴ was authorized by an AMC regulation.

Advance Planning Procurement Information

Since 1965 the Army Materiel Command had conducted the Army/Industry Materiel Information Program to allow potential producers

³ DODI 4200.5, 30 Jan 1969.

⁴ AMCR 715-86, 18 Dec 1968, subj: Procurement, Report of Certificate of Competency—Activity and Status.

to plan in advance for their possible participation in AMC procurements. A synopsis of advance planning procurement information on specific items was furnished to the Commerce Business Daily for publication in the issue for the first Tuesday of each month. Such information was for planning purposes only. In the revision of the Army Procurement Procedure dated 1 March 1969, the policy for this program was set forth and responsibility for the program was placed with the Army Small Business and Economic Utilization Advisor, Office of the Assistant Secretary of the Army, Installations and Logistics.

Munitions

PEMA Program

Of \$9.4 billion Department of the Army revised forecast of awards, Munitions Command awards approximated one-half of dollars awarded. The Munitions Command received a released program amounting to \$4,738.9 million. Cumulative awards totaled \$4,350.4 million, or 92 percent of the awards accomplished. The total AMC released program amounted to \$9,236 million, of which the Munitions Command received \$4,739 million, or 51.3 percent of the AMC released PEMA program. The Munitions Command awards represented 53 percent of the AMC awards. Interestingly, APSA spent 45 cents of each AMC dollar and placed 82 percent of the total MUCOM awards.

Fuzes

With the escalation of the SEA conflict, the procurement and production of all types of fuzes posed a serious problem.

Beginning in 1965 contractors were unable to meet contract delivery schedule for fuzes. MUCOM initiated an investigation of the fuze problem to determine the causes for industry's inability to deliver the required production quantities. MUCOM prepared a fuze study titled "Staff Study of Mechanical Time Fuze Production Base," dated 21 April 1967, and the Task Team Report, Fuze Engineering Study (Technical Report 3775), dated August 1968. The investigation revealed an acute shortage of industrial production facilities and skilled craftsmen to manufacture and assemble precision parts. In addition, it was found that a large percentage of precision fuze metal parts was being imported.

As a result of the steady decline, since 1948, of the United States horological industrial production base, a recommendation was prepared for the establishment of a GOCO fuze facility for the production of fuze precision metal parts. When GEN Frank S. Besson, Commanding General, AMC, was briefed, he stated that a plant survey would not be made until the DA Staff approved the GOCO fuze facility concept. Project No. 5695541 in the amount of \$19.6 million was submitted in February 1969 for the procurement and installation of production equipment only. The fuze project was submitted to DCSLOG in May 1969 and the Assistant DCSLOG for Programs indicated that the project would receive his support. DCSLOG returned the project on 28 May 1969 for further action and requested that a site selection survey be performed to determine the appropriate location for the proposed facility; and that an appropriate design project be developed and submitted to establish firm cost estimates for equipment and construction of the facility.

Weldon Spring Chemical Plant

On 31 July 1967, the Assistant Secretary of Defense (I&L) approved a Fiscal Year 1968 P4900 Project in the amount of \$19.7 million for the establishment of an in-house capability for 8 million gallons per year of Orange, a defoliant herbicide used by the Air Force in SEA for which DSA had procurement responsibility. Also, the Assistant Secretary of Defense (I&L) directed on 31 July 1967 that the required tetrochlorobenzene (TCB) be obtained through industrial expansion by means of multiyear contracts.

On 8 November 1967, the Corps of Engineers and Edgewood Arsenal placed a \$10.492 million contract with Thompson-Stearns-Rogers (TSR) for the establishment of an in-house capability at the Weldon Spring Chemical Plant, St. Charles, Missouri. A contract option for plant operation for the period of September 1969 through August 1970 was exercised by Edgewood Arsenal with funds provided by the Air Force. In May 1968, Edgewood Arsenal placed two 3-year contracts with Sanford Chemical Company, Sanford, Texas, and Delaware Chlorine Company, New Jersey, for sufficient TCB to produce 8 million gallons of Orange per year.

As of 1 January 1969, Air Force requirements for Orange dwindled from 8 million to 3.18 million gallons per year. Additionally, industry's capability for Orange production increased from 4.2 million gallons in December 1966 to 8.2 million gallons in January 1969 which was sufficient to meet

civilian and military requirements. In January 1969, the Corps of Engineers raised its construction estimate from \$19.7 million to \$30.8 million. This brought the cost per gallon of Orange up to the price that DSA paid for Orange from industry, approximately \$7.10 per gallon.

Because industry could produce all Orange required by the Air Force and the civilian economy, it was determined to be in the best interests of the Government to cancel the Weldon Spring Chemical Plant and TCB contracts. At the recommendation of the Commanding General, AMC, the ASD (I&L) approved on 31 January 1969 the termination of the TCB and Weldon Spring contracts, effective on 3 and 4 February 1969.

Gateway Army Ammunition Plant (AAP)

In accordance with the original delivery schedule, the operating contractor, Chrysler Corporation, was 1 year behind in the delivery of 263,000 metal parts for Projectile, 175mm, HE, M437. In November 1966, the Secretary of Defense directed the Army to establish a facility as a second production source for this projectile. The establishment of Gateway AAP was accomplished by a facility project that totaled \$41.5 million. The delivery of items by Chrysler Corporation in the initial stage of production may have been hampered as a result of problems encountered by the construction contractor, under the supervision of the Corps of Engineers, in the complex plant clearance and rehabilitation work within the plant. This factor was recognized by the Army in the execution of a modified delivery schedule agreed to by Chrysler.

By the end of June 1969, however, Chrysler had delivered only 19,104 acceptable items against a modified delivery schedule of 263,000 projectiles by the end of May 1969.

In an effort to bring Chrysler Corporation up to an acceptable production rate of 40,000 projectiles a month, starting 16 July 1968 the Government gave technical assistance representing 180-man days. By the end of Fiscal Year 1969, Chrysler was still experiencing problems with almost every stage of the production line; and there appeared to be nothing in the immediate future to indicate that the contractor would overcome the many production difficulties encountered.

Missiles

The MICOM PEMA program for Fiscal Year 1969 totaled \$668 million. Contract awards were made totaling \$514 million or 90 percent of released program, leaving \$154 million as carry-over. A general comparison of Fiscal Year 1969 and Fiscal Year 1968 PEMA programs follows:

Fiscal year	Total budget	Contract awards	Percent awarded	Carry-over
	(\$ mil)	(\$ mil)		(\$ mil)
1968	606.7	569.0	94	37.8
1969	668.0	514.0	90	154.0

Contracts

In PEMA procurements of over \$1 million, the use of letter

contracts (LC) decreased during Fiscal Year 1969. They numbered 19 obligations for a total LC commitment of \$47.6 million of which \$46.2 million was PEMA or 94 percent of the LC dollar value obligated. The balance of the LC dollars, \$1.4 million was R&D and OMA. At the end of the fiscal year, the total dollar value of outstanding LC's was \$21.8 million of which approximately \$21.6 million was PEMA. This year closed with no overage on LC's.

Emphasis continued to reduce the number of CPFF contracts. Consequently, 38 of the 49 over \$1 million PEMA contracts placed contained incentive clauses or were firm-fixed-price. A further analysis showed that of the over \$1 million contracts outstanding, 77 were either firm-fixed-price or contained incentives. The average dollar value of delinquencies dropped from \$12.7 million per month in Fiscal Year 1968 to \$2.6 million in Fiscal Year 1969.

Missile Procurement Field

Funding problems were universal in each missile system with varying degrees of impact on programs. Programs, or portions of programs, such as LANCE, SHILLELAGH, CHAPARRAL, DRAGON, and REDEYE had holds or restrictions affecting the total integrated procurement program and contract awards. The following conditions are characteristic of the type problems that existed in the missile procurement field:

CHAPARRAL—LC's awarded by the Navy were definitized late

in Fiscal Year 1970. Much effort was expended at all levels to avoid carry-over into Fiscal Year 1970.

FAAR—Forward Area Alerting Radar (FAAR) with IFF (identification, friend or foe) was designed for acquisition and rapid identification of low flying aircraft against a cluttered background in conjunction with CHAPARRAL/VULCAN and REDEYE. The FAAR program was plagued with delays due to late deliveries of satisfactory hardware and accompanying software in addition to a number of significant performance difficulties revealed during the TECOM tests.

2.75-inch Rocket Launcher, XM200—Potential delinquencies were indicated in deliveries from the sole source contract with A. C. Electronics for XM200 Rocket Launchers. Contractor was experiencing difficulties in obtaining required materials (e.g., special mill-run steel tubing) needed to meet end item deliveries. Requests for priority assistance were forwarded to the Department of Commerce.

REDEYE—Deliveries of the BA627 Missile Battery and the BA628 Launcher Battery for the REDEYE Missile System were made from the Eagle Picher Company. As required by the contract, these deliveries were made in sufficient quantities to provide a 60-day leadtime to support weapon production. These batteries were furnished to General Dynamics, Pomona, through ECOM as GFE. Delays in deliveries of batteries could seriously affect the prime contractor. The quality and reliability problems which

had previously affected battery deliveries and had been the subject of several conferences between ECOM, MICOM, and this Headquarters appeared to have been solved.

Electronics

PEMA Program

The released ECOM PEMA Procurement Program for Fiscal Year 1969 was \$1,161.7 million of which \$799.2 million was awarded by 30 June 1969. Of the \$362.5 million not forecast, \$93.4 million was reserved in support of existing contracts; \$254 million was retained for procurements to be effected in Fiscal Year 1970; and \$15.1 million was being reprogramed. Close coordination of the AMC Headquarters and ECOM staff personnel had already reduced the not forecast category by \$29.5 million resulting from savings and program adjustments. The percentage of awards against the total released program was 69 percent. The goal was to attain an awards figure 2 percent higher than the 82 percent accomplished in Fiscal Year 1968.

ECOM was depending on its monthly PEMA review conferences, at which all command elements were represented, to surface problem areas early in Fiscal Year 1970 and improve its management control over all aspects of the PEMA program. AMC Headquarters, in close coordination with ECOM, was to continue to monitor the milestones on ECOM's Principal PEMA Procurement Plans, which consisted of a tracking sheet for each item of \$1 million or more in

ECOM's Fiscal Year 1970 PEMA Procurement Program. These sheets were to be updated monthly so that problem areas could be pinpointed quickly and corrective action taken.

Production Base Support Program

During Fiscal Year 1969, responsibility for field supervision of the production base support program was divided between AMCPP and AMCRD (Research, Development and Engineering Directorate). Responsibility for advance production engineering measures and military adaptation of commercial items was assumed by AMCRD. AMCPP retained responsibility for the provision of industrial facilities, layaway of industrial facilities, and manufacturing methods and technology measures. In this fiscal year, the procurement and production portion of the ECOM program amounted to \$6.3 million.

The emphasis of having contractors furnish their own facilities from private capital as required for defense production, was clearly evident during Fiscal Year 1969. ECOM was not successful in obtaining approval of any of the four facility projects submitted. One of the projects supported an urgent SEA requirement and the other three were for special acceptance test equipment for principal end items of equipment.

Letter Contracts

ECOM began Fiscal Year 1969 with 92 undefinitized LC's and closed this fiscal year with 39, only one of which was over 6 months old. This represented a significant improvement over the

previous years. Close controls on the use of LC's and prompt definitization of those written are to be established in Fiscal Year 1970; and this was expected to result in an even more dramatic posture improvement.

Production Management

A program for intensive management of pacing production of items critical for troop activation and developments was established in Fiscal Year 1967. Control of this program at ECOM is centered in the Production Surveillance Office, a staff element of AMCPP. There were initially 30 items under intensive management and as of the end of Fiscal Year 1969, 59 items were being managed. There was a continuing emphasis not only in resolving problems and getting delivery of items but also in revising delinquent delivery schedules. At the end of the fiscal year, 68.7 percent of the dollar value of the PEMA Base Line Items (the majority of the intensively managed items) that were scheduled for delivery were being delivered on time. Four items of high dollar value on which these had been technical problems were responsible for the "only fair" percentage of on-time deliveries. Delinquencies on other items not selected for intensive management were also closely monitored and were receiving the same emphasis with regard to revising delinquent delivery schedules.

Mobility and Weapons

MECOM Procurement Program

A total Fiscal Year 1969 PEMA procurement program of \$475 million was projected for MECOM items. Of this amount \$354 million was released for procurement and total awards reached \$270 million. A total of \$46 million or 13 percent of the MECOM released program was procured by The Defense Construction Supply Center, the Defense General Supply Center, or other DOD procurement agencies. Program deletions and deferments, together with late program releases adversely affected the Command's ability to make awards.

In September 1968, MECOM was directed to procure 30 items of heavy construction equipment at an estimated cost of \$21 million for the RVN-LOC Highway Restoration Program. The request was received during the period 22 October through 12 November 1968 and delivery in Vietnam was to be made by 1 January 1969. Competitive solicitations were issued for commercial-type items and the resultant 31 contracts were all awarded by 13 December 1968 at a total price of \$15 million.

Some of the major procurements were as follows:

Crane, Shovel, Truck Mtd, 20-ton—On 17 March 1969, MECOM awarded contract DAAK01-69-C-7411 to Harnischfeger for 114 cranes including 35 carried over from Fiscal Year 1968, at \$5.8 million. A further quantity of 95 was awarded on 1 April 1969 by option on the same contract for \$5 million.

Small Military Engines—Multiyear contract DAAK01-69-C-3413 was awarded on 29 November 1968 to Chrysler Outboard Corporation to buy Fiscal Year 1969 quantities of 2,520 (1 1/2 HP), 5,580 (3 HP) and 9,900 (6 HP) MIL STD engines at a total cost of \$9.1 million.

Generator Set, 100 KW, 60 Hz, General Purpose—On 27 February 1969, ECOM awarded contract DAAK01-69-C-5230 to Holt Bros. for 100 each at \$1 million. A further award of 186 generator sets at \$1.2 million was made on 6 June 1969 to Jeta Power, Incorporated, under contract DAAK01-69-C-9281.

XM809 Series 5-Ton Truck

Difficulties encountered with the LDS-465 multifuel engine from reliability and durability standpoints prompted the Army to initiate actions necessary to change the power source for the 5-ton M39 series truck from the LDS-465 engine to a commercial diesel engine. As a result of technical evaluations and cost-effectiveness studies, it was decided that the engines most suitable to meet the Army's requirements was the Cummins, Model NHC-250; Cummins, Model NHCT-270; Detroit Diesel, Model 6-71; or Mack, Model ENDT-6730. The engine chosen was the Cummins, Model NHC-250. Accordingly, industry was solicited for bids for a 4-year multiyear procurement of approximately 13,000 trucks and a contract was awarded on 10 March 1969 to Kaiser-Jeep Corporation in the amount of \$212.4 million, to be funded incrementally over the 4-year period, Fiscal Year 1969-1972.

Deliveries were scheduled to begin in December 1969 with 100 trucks and were to build up to a run-out rate of about 400 trucks per month. Pending designation to be established after type classification as Standard A, this truck, with the diesel engine, was to be known as the XM809 Series.

M16 Rifle

The importance of Fiscal Year 1968 contract awards made to the Hydramatic Division, General Motors Corporation (GMC) and to Harrington and Richardson, Incorporated was stressed by the Commanding General, AMC, on 11 July 1968 in identical letters addressed to the president of GMC and the president of Harrington and Richardson, Incorporated. In these letters, GEN Besson emphasized the need for the closest possible cooperation between the Army and the contractors. This cooperation was necessary in order to meet the accelerated delivery schedules which were more ambitious than any previously attempted in rifle production. Both contractors gave assurances of their complete cooperation in the joint effort, and indicated that they intended to better the mandatory delivery schedule of the Government. While GMC instituted a system of reporting to the Commanding General, AMC, twice a month, during the critical tooling-up stage of production, Harrington and Richardson, Incorporated did not report on a regular basis after its initial reply.

The acquisition of new production tools was a major problem for both rifle contractors, which was overcome by utilization of

alternate back-up tooling. Also, problems were experienced with the relatively new technical data package which had been acquired from Colt's, Incorporated, and had not been used by any other source for production. However, as a result of the extraordinary efforts exerted by the contractors and the Government, initial rifle deliveries from the two new sources were made in December 1968, 2 months ahead of schedule.

As of June 1969, GMC had delivered a total of 42,034 rifles, 7,034 ahead of the schedule requirement for 35,000 rifles. Letter contract, DAAFO3-68-C-0048 awarded on 18 April 1968 to the GMC established ceiling prices for 240,000 rifles for the 2-year multi-year requirement, at \$158 per unit, reproduction costs at \$12 million and \$210,000 for inspection and test equipment, and a total ceiling, \$50,130 million. The definitization of this contract by a modification of 19 December 1968 resulted in a reduction of the rifle price to \$130.77. Preproduction cost was established at \$38.87 per rifle, total amortized preproduction costs of \$9,328,800, and an inspection and test equipment cost of \$156,000. The total contract amount was \$40,869,600.

Letter contract, DAAFO3-68-C-0045 awarded on 18 April 1968 to Harrington and Richardson, Incorporated established ceiling prices for 240,000 rifles at \$127 per unit, preproduction cost for \$4,865,518 and \$275,000 for inspection and a test equipment total ceiling cost of \$35,620,518. The definitization of this contract by modification dated 19 December 1968 resulted in a

reduction of the rifle price to \$122.04. The preproduction cost was \$17.61 per rifle. The total amortized preproduction cost was \$4,226,400 and the inspection and test equipment cost was \$185,522. The total contract amount was \$33,701,522.

In May 1968, the Government requested Colts Incorporated to accelerate production from 27,500 to 50,000 rifles per month by June 1969. Also, this firm received contracts for 741,803 rifles of which 1,000 were to be of the M16 model and the remainder M16A1 rifles. Colts Incorporated met the accelerated schedule, producing 50,000 rifles in June 1969. The original price proposed by Colts was approximately \$120 a unit, subject to downward negotiation. An agreement on price had not been reached by the end of June 1969. The respective documented positions of the Government and Colts remained at \$101.61 for the Army and \$116.67 for Colts.

The deferral of the Fiscal Year 1969 M16 rifle program presented some problems with respect to the timely implementation of the follow-on orders necessary to support the accelerated production program at Colts and the second increment of the multi-year programs at GMC and Harrington and Richardson. The funding problem arose because the President's budget did not contain the increased requirements for expansion of the rifle production base. However, the \$95.1 million of the Army program approved on 23 October 1968, with the \$34.1 million already funded in July 1968, provided the total program needs for 754,232 rifles; other customer

requirements totaled 178,768 rifles. These releases were effected in time to meet contract options and multiyear commitments.

Planning was initiated in the fall of 1968 for the Fiscal Year 1970 procurement of rifles. It was expected that the Government would be able to effect a degree of competition among the three existing sources. Projections at that time indicated that a production rate of approximately 60,000 rifles a month would satisfy requirements. The total capacity of the three sources was expected to reach 100,000 rifles a month by November 1969. Therefore, the excess capacity indicated that a plan which would eliminate one source would stimulate maximum competition. Accordingly, it was decided that proposals would be solicited from the three sources on the basis of two alternative plans. The first plan was based on a 1-year requirement and the second plan on a multiyear requirement.

In April 1969, DOD indicated that it would not approve the Army's plan for a one rifle Army based on the M16A1 rifle and that both the M16A1 and M14 rifles would remain as standard for the foreseeable future. This decision cast considerable doubt on the firmness of requirement projections beyond Fiscal Year 1970. The procurement plan was approved on 14 May 1969 on the basis of the two alternative plans and proposals were solicited from the three producers on rates of production of 20,000; 30,000; and 40,000 rifles a month. Since it was important that award be made early in July 1969 to maintain continuity of production, all actions

leading to contract awards were accelerated. On 27 June 1969, ASA (I&L) approved the award of two contracts, one to Colts for Incorporated for 458,435 rifles and one to Hydramatic, GMC for 229,227 rifles. Harrington and Richardson, Incorporated, the third source, did not receive an award for Fiscal Year 1970. Shortly thereafter, the Chairman of the House Armed Services Committee requested that the Army brief Congressmen Richard Ichord and William G. Bray on numerous questions concerning the Fiscal Year 1970 procurement. This briefing was to be made before the contracts were issued. The Army complied with the request for briefings in July 1969 and suspended action on the awards.

Termination of the AH-56 (Cheyenne)
Production Contracts

On 19 May 1969, the Government terminated for default the AH56A (Cheyenne) production contract with Lockheed Aircraft Corporation. This contract was awarded as a result of options in the R&D contract where the Army had the right to exercise options for any one of four quantities. The option provided for firm target prices if exercised by March 1967 and the decision could be delayed until January 1968 with equitable adjustments in target costs. The option was exercised on 8 January 1968. As testing of the 10 prototype aircraft produced on the R&D contract proceeded, it became evident that serious mechanical problems existed, which made production of a helicopter strictly in accordance with terms and conditions of the contract most unlikely. During the testing, a helicopter was lost due to

mechanical failure. This aircraft was a complete loss with pilot fatality.

As it became apparent that the production helicopter would not meet the performance criteria established in the contract and that production would be seriously delayed, the AMC contracting officer, with DA participation, decided to terminate the contract for default. The Army determined that mechanical problems and the fact that the helicopter did not meet performance requirements were within the contractor's control and thus the contractor was at fault. Furthermore, the Army decided that if a suitable agreement could be reached with Lockheed, the R&D contract would be continued in an attempt to salvage much of the R&D effort that had been expended on the helicopter.

Under the "disputes" clause of the contract, Lockheed filed an appeal and the merits of the termination for default were to be decided by the Armed Services Board of Contract Appeals. Should the Board find that the Army improperly terminated the contract, the termination would then be turned into a termination for convenience. Personnel involved in this program believed that the litigations might last for more than 2 years.

CHAPTER VI

(S) MATERIEL REQUIREMENTS

(U) Introduction

The Army program involving procurement and fulfillment of materiel requirements normally underwent constant review to insure that missions assigned were being accomplished quickly, efficiently, and economically. To manage the items under AMC control more effectively, often mission requirements demanded changes in the organizational and administrative machinery. Fiscal Year 1969 was notable in this respect because 2 significant organizational changes were effected in the area of materiel acquisition, both of which were designed to bring major items of equipment under closer management and make command decisions involving this type of equipment more responsive to ever-changing requirements.

Although preparation for a major change had been going on during most of the latter half of Fiscal Year 1968, the first major change became effective on 1 July 1968. On this date, the Directorate of Major Items (AMCMI) was redesignated the Directorate of Materiel Requirements (AMCMR). In addition to retaining most of the functions of AMCMI, the new directorate added certain missions and functions as well as personnel from the Directorate of Maintenance (AMCMA) and the Directorate of Supply (AMCSU)¹ This

¹
(1) DF, CofS, AMC, to directorates/staff offices, 17 June 1968, subj: Reorganization, Headquarters, AMC. (2) Chart, AMCMR, 1 July 1968. (3) Chart, AMCMI.

organizational change was made in order to implement certain organizational concepts and recommendations of the Department of the Army (DA) Board of Inquiry (Brown Board) regarding commodity systems management. These concepts were designed to make the headquarters organization more compatible with the standard organizational structure recommended for major subordinate commands. By doing so, it was possible to improve the responsiveness and effectiveness of the Army logistics system.²

The major functions transferred to the new directorate, AMCMR, were the responsibility for depot maintenance management, PEMA (procurement of equipment and missiles, Army) Secondary Items management, AMC Installation Stock Fund management, DSA/GSA (Defense Supply Agency/General Services Administration) item management, and construction materiel planning. Most of the functional offices of AMCMI were incorporated in the AMCMR organization, but with several significant changes.

(U) Programs and Resources Office

PEMA Funding

The planned PEMA direct Army program of \$6,394 million was a new annual high, slightly more than the Fiscal Year 1968 total. The total program also included a planned supplemental of \$620 million and was released at a record rate of almost \$6 billion by

2

Memo, CG, AMC, for all Headquarters, AMC, personnel, 17 June 1968, subj: Reorganization of AMC Headquarters.

the end of July 1969. Portions of the anticipated supplemental appropriation for ammunition (\$1.2 billion) were included in the early release as an overprogramming action, but by December 1968 \$717 million of this amount had been withdrawn by the Department of the Army (DA) and the year ended with only \$630 million of the anticipated supplemental released.

The following table indicates the comparative size of the Fiscal Year 1969 program and the amount of internal turbulence:

3

Table 3.—DA Released AMC Direct Army PEMA Program.

	(\$ millions)		
Program	FY 1967	FY 1968	FY 1969
Jul	\$ 164	\$4,004	\$5,775
Sep	2,538	4,608	5,984
Dec	3,562	5,022	5,608*
Mar	3,918	5,210	5,864
Jun	5,412	6,282	5,954

*Reduction due to cutback of ammunition.

Efforts at all levels to review and reduce the uncommitted/unobligated/unliquidated PEMA program balances were continued at an intensified rate, and continuous followup and close coordination were maintained with the major subordinate commands and DA staff.

3

AMCMR Monthly Status of Approved and Released Fiscal Year PEMA Program, FY 1969.

These measures resulted in a recoupment which reached \$169.6 million by the end of April 1969. These reductions in prior year programs brought about by an intensified review of unused PEMA program funds for prior years approximated the Office Secretary of Defense (OSD) imposed year end target of \$200 million.

PEMA Programing

The Army Materiel Plan (AMP) was the basic document used by AMC and higher headquarters in support of PEMA programs and budgets. The document covered assets, losses, procurement schedules, unit costs, and net requirements for a 5-year period and was automated under the System for Automation of Materiel Plans for Army Materiel (SAMPAM).

The SAMPAM format was recognized as useful in supplying information for various other PEMA major items reports. After solving some initial problems involving differences between the various reports and reprograming some computers, a system resulted whereby all commands and the U.S. Army Major Item Data Agency (MIDA) were notified of any changes and documents were revised accordingly.⁴ Continuous guidance to the field on the preparation of data, program detail, and data content was necessary in order to insure incorporation of all changes to DA PEMA policy and

⁴ (1) Ltr, LOG-DD-PPBB to ODCSLOG, 19899, 17 Dec 1968, subj: Budget Study Code Changes in the DCSLOG Cross Reference File. (2) Ltr, AMCMR-PM to ODCSLOG, 20 Dec 1968, subj: same.

5

guidance as they occurred.

The Procurement of Equipment and Missiles, Army Management and Accounting Reporting System (PEMARS) program also made progress during 1969, as the first useable PEMARS system runs were produced for use by AMCMR. However, the continued delay in the full implementation of PEMARS necessitated the markup of the P-1 supporting data for the Fiscal Year 1970 apportionment and the Fiscal Year 1971 budget estimate from data available in the headquarters.

T-Day Planning

Data on Department of Defense (DOD) controlled principal items was developed and furnished to DA during the 4th quarter of Fiscal Year 1968 for incorporation in DA T-Day planning. The Secretary of Defense directed an update of this data, based on revised assumptions to be accomplished in three phases: (I) Army requirements procured by other services; (II) Production planning data, including procurement for other services; and (III) DA review, consolidation, and final coordination of data and submission to DOD.

The data to be submitted was required in a format adaptable to automatic data processing (ADP). Phase I was forwarded to DA on 24 March 1969 and Phase II was forwarded on 17 April 1969.

5

Ltr, AMCMR-PM, 22 Oct 1968, to major subordinate commands.

6

Ltr, ODCSLOG, 24 Feb 1969, to LOG/PE-PIB, subj: T-Day Planning.

At a later date both were incorporated in the Army T-Day Planning Directive, which established priorities for the redistribution of equipment for T-Day.

Transfer of Items

In December 1967, DA began a series of actions to transfer to PEMA certain \$1,000 operation and maintenance, Army (OMA) items being procured locally. The items in question were to be managed in accordance with current DCSLOG PEMA policy and guidance and AMC was required to submit an estimate of requirements to be included in the Fiscal Year 1970 PEMA budget/procurement program.⁷

The criteria for selecting items for transfer were: Items with a unit cost of over \$1,000; items contained within the DA equipment list; and non-type classified items included in SB 700-20. A total estimate of \$32,839,140 was revised to \$29,359,624 in the completed estimate for Fiscal Year 1970.

Central Worldwide Depot Maintenance

Effective 1 July 1968, AMC assumed responsibility for central management of worldwide depot maintenance.⁸ AMC established basic operational policy and provided implementing instructions for the United States Army, Europe (USAREUR); the United States Army,

⁷
Ltr, DA, AGAM-P(M) (6 Sep 1968), LOG-PH-PPBB, 10 Sep 1968, subj: FY 70 PEMA Budget Estimate for End Items with a Unit Price of \$1,000 or over (Formerly OMA financed).

⁸
Ltr, TAGO, AGAM-P(M) (27 June 1968), LOG/MCD, 1 July 1968, subj: AMC Central Management of Depot Maintenance Worldwide.

9

Pacific (USARPAC); Headquarters, AMC; and the AMC commodity commands.

Allocations to finance the costs of this maintenance was made by Headquarters, U.S. Army. This funding was made directly to AMC for programs to be executed in the continental United States (CONUS) and directly to the appropriate overseas command for programs to be executed overseas, with the exception of funding for overseas depot maintenance requirements pertaining to AMC-owned stock-funded items stored in overseas depots. In the latter instance, the applicable national inventory control point (NICP) forwarded a funded requirement to MIDA, who in turn forwarded a funded work authorization document to the appropriate overseas command.

The Commanders-in-Chief, USAREUR, and USARPAC, developed their requirements, plans, programs, and budget for depot maintenance executed within their commands. They retained responsibility for the execution of those programs established by the Commanding General, AMC, and approved by DA. They were responsible for the requisitioning of spare parts and operation and control of depot maintenance facilities and administration of contracts through which they executed their programs.

The Commanding General, AMC, was responsible for the determination of worldwide requirements and for programing, work loading, technical standards, repair parts, and other support of

9

Ltr, AMCMA-MC, 2 July 1968, to major subordinate commands, et al., subj: AMC Central Management of Depot Maintenance Worldwide.

worldwide depot maintenance. He was also responsible for budgeting depot maintenance programs to be executed within CONUS, supervising their execution, and overseeing the collection and reporting of depot maintenance management information from worldwide depot maintenance facilities.

Army Stock Fund Programs

DOD and Bureau of the Budget (BOB) approval of Army Stock Fund Fiscal Year 1969 Reapportionment Request and Fiscal Year 1970 Apportionment Request were furnished as follows:

Table 4.—Reapportionment and Apportionment Requests.

	(\$ millions)		
	Sales	O/A	CA
AMC Wholesale			
FY 1969	\$1289.0	\$1092.2	\$258.9
FY 1970	1187.9	856.7	236.3
AMCID			
FY 1969	377.9	388.5	14.2
FY 1970	382.6	379.5	14.2
MAP/MOB			
FY 1969	61.2	73.2	—
FY 1970	67.1	63.2	—
Petroleum & Allied Products			
FY 1969	150.0	143.2	1.1
FY 1970	150.0	154.3	1.1

10

DA msg 914475, 27 June 1969, from DCSLOG, subj: ASF Operating Program 1970.

During the year, DA informed all ASF Divisions that \$360 million in cash was to be transferred to PEMA to offset new obligational authority.¹¹ Withdrawal of \$2.2 million in cash from the USAMC Installations Division (AMCID), ASF, was directed. The only other withdrawal of cash from the AMCID, ASF, had occurred in Fiscal Year 1966 when \$5 million was withdrawn. DOD did not require a mid-year or apportionment request review on the AMC, ASF; the Petroleum and Allied Products Category of the AMCID, ASF; and the Retail MAP/MOB Categories, AMC, ASF in Fiscal Year 1969.¹² The AMC, ASF, estimates were also afforded this treatment in Fiscal Year 1968.

(U) Construction Materiel Coordinator's Office

General Highlights

During Fiscal Year 1969, this office was concerned with several major items of construction materiel. Over \$23 million worth of commercial rock production and hauling equipment was procured and employed effectively in Vietnam, making possible an accelerated road building program there.¹³ As a result, table of organization and equipment (TOE) construction equipment and part support shortages were partially alleviated in the U.S. Army, Vietnam (USARV). The Secretary of the Army was informed of substantial progress in

¹¹ DA msg 913653, 21 June 1969, from COA-B, subj: Army Stock Fund Cash.

¹² DA msg 892665, 7 Jan 1969, from DCSLOG, subj: Mid-Year Review.

¹³ AMCMR-G ltr, 11 Sep 1968, to Distr A&B, subj: USARV LOC Highway Restoration Program.

the USARV Line of Communication Highway Restoration Program.¹⁴

Near the end of the year, a revolutionary Universal Folded Plate Structural System underwent evaluation and excellent results were expected from this system. DOD obtained manufacturing rights from the inventor and if the system were adopted, it would result in substantial savings. Also, discussions were initiated with the U.S. Army Combat Developments Command (CDC) and the Office, Chief of Engineers (OCE) in an attempt to establish a commercially designed prefabricated system which would greatly improve construction readiness.¹⁵

In other developments, the DA publication of a policy to provide commercial construction equipment to selected construction units through a simplified system was expected in early Fiscal Year 1970. In addition, the importance of recovering DeLong Piers in a post hostility war reserve was recognized at high levels of the government.¹⁶

¹⁴ LOG/SD-PIDB memo, 30 Jan 1969, thru: Chief of Staff, U.S. Army, from: LTG Engler, for: ASA (I&L), subj: USARV LOC Restoration Program.

¹⁵ JCS memo SM 352-69, 4 June 1969, subj: Construction Board for Contingency Operation.

¹⁶ (1) Ltr AMCMR-G, 18 June 1969, to Distr A&B, subj: Commercial Construction Equipment. (2) Memorandum from Assistant Secretary of Defense (Properties and Installations), 11 Oct 1968, subj: Return of DeLong Piers to War Reserve Stock.

(U) Aviation Division

FEMA Program—Aviation

Of a total Army program of \$172.4 million for Fiscal Year 1969, \$41.9 million or 24 percent of the program was unfunded due to Congressional disapproval of the Fiscal Year 1969 Supplemental Request in May 1969. This action necessitated the preparation, in early June, of a Reprogramming Action (DD Form 1415) for submission to the Office of the Secretary of Defense (OSD). A review of replenishment and provisioning requirements held in the Pentagon on 23-24 June 1969 determined that the requirements were valid and that the \$41.9 million deficit would be funded in the 1st Quarter of Fiscal Year 1970.

Subsequently, OSD reversed its position and called for further review of requirements which could not be completed during Fiscal Year 1969. At the end of the year, AMC requested that at least \$22.9 million of the total deficit be provided prior to 25 July 1969 because failure to make contracts for required items, especially aircraft engines, would result in substantially increased prices when the items were finally ordered. Nevertheless, DA indicated that funds could not be made available prior to 1 October 1969 because of overall Army funding restrictions.

In contrast to this somewhat bleak picture with respect to the FEMA program as a whole, no funding shortages were experienced in Fiscal Year 1969 in execution of the Stock Fund Program. The obligational authority initially approved at the beginning of the

fiscal year amounted to \$416.5 million and was increased to \$459.6 million in December as a result of the OSD/BOB approved Fiscal Year 1969 reapportionment request. Due to a decrease in sales and an inventory increase resulting from higher than anticipated customer returns, obligational authority was reduced at the end of the year to \$412.6 million.

Logistical Support of the Republic
of Vietnam Air Force (RVNAF) Program

To support the RVNAF, the diversion of 60 UH-1 helicopters¹⁷ from new production Army assets was approved in January 1969. Accordingly, 5 helicopters were sent to the Republic of Vietnam (RVN) in March, 18 in April, 19 in May, and 18 in June. In addition, the Air Force planned to buy 129 additional aircraft in 1969,¹⁸ 175 in 1970, 72 in 1971, and 36 in 1972 for support of the RVNAF. The responsibility for procurement, production, and distribution of UH-1 aircraft for RVNAF was expected to flow through Army channels and transfer of title for all Army UH-1's furnished would¹⁹ take place in RVN. At the end of the year, management procedures were being instituted to accomplish this objective.

17

JCS msg 9754, DTG 172323Z, Jan 1969.

18

Minutes of meeting, AVSCOM, 23-24 Apr 1969, subj: UH-1 Aircraft for VNAF I&M Program.

19

MFR, DA DCSLOG/SAA-ASLSB, 20 Feb 1969, subj: VNAF Logistical Support Conference.

Introduction of Excess Navy TH-13M
Helicopters into Army National Guard

Since UH-19 helicopters were being phased out of the Army National Guard system, the search for a replacement aircraft went on during 1969. The Army could not meet this requirement due to the pressure of Southeast Asia (SEA) requirements and as a result, the National Guard suggested acquisition of excess Navy TH-13M helicopters.

DA authorized such a transfer from Navy to Army control on an "as-is, where is" basis providing the aircraft were supported²⁰ and accounted for on Army records as standard aircraft. As a result a total of 33 TH-13M's located at the Naval Air Station at Pensacola, Florida, was transferred to the Army National Guard.

Return of CH-37B

In January 1969, DA directed and programed a return of 26 CH-37B helicopters (13 from USAREUR and 13 from USARPAC) to CONUS²¹ Reserve Forces during the 4th Quarter of Fiscal Year 1969.

Pursuant to a USAREUR request for a waiver of transfer standards on the aircraft, such a waiver was granted and all 13²² CH-37B helicopters arrived in-country by 15 June 1969. The

²⁰

DA msg 891439, 21 Dec 1968, to CNO and CG, AMC, subj: Transfer of Navy TH-13M Helicopters to Army.

²¹

(1) DA, DCSLOG/SDD-ALSB, msg 894167 to CINCUSAREUR, 18 Jan 1969, subj: Disposition of CH-37B Helicopters. (2) DA, DCSLOG/SDD/ALSB, msg 894729 (C), 24 Jan 1969, subj: Aircraft Distribution CH-37B(1-1).

²²

(1) CINCUSAREUR msg SX-1452 (C), 31 Jan 1969, to DA, subj: Disposition of CH-37B Helicopters. (2) DA, DCSLOG/MED-AEB, msg 899085 (C), 28 Feb 1969, to CG, AMC, subj: Disposition of CH-37B Helicopters.

13 helicopters from USARPAC were not granted a waiver of transfer standards pending a request submitted directly to DA by USARPAC.

Flight Delivery of U-8
Aircraft to Europe

In June 1968, AMC charged the U.S. Army Aviation Systems Command (AVSCOM) with the flight delivery of 13 U-8 aircraft to Europe from McGuire Air Force Base, New Jersey. The mission was regarded as a test project to determine whether flight delivery would effect substantial benefits over other modes of shipment. The mission was accomplished in two flights and by 5 August 1968, all 13 aircraft were delivered in Europe.

This project was successful in displaying the advantages of flight delivery over surface transportation of aircraft. The best estimates for surface shipment indicated a cost of \$6,000 per aircraft, not counting the cost of bringing the aircraft up to full operational status. In addition, some preparation and repairs were invariably required before surface shipped aircraft were deemed suitable for issue to using units. In contrast to this, flight delivery cost approximately \$2,500 per aircraft. On the test flight of 13 aircraft, it was therefore reasonable to assume a savings to the government of approximately \$50,000.²³ Moreover, the aircraft usually arrived at their destination ready to be issued.

23

DA, ACSFOR, ltr, 11 Oct 1968, subj: Report on Flight Delivery of U-8 Aircraft to Europe.

Considering these advantages, the indications were that all Army aircraft with the range capability should be ferried to overseas destinations after extensive planning and coordination of maintenance, routes, foreign clearances, and in-flight procedures were accomplished. Consequently, DA issued guidance on an aircraft distribution policy concerning these matters.²⁴

During Fiscal Year 1969, the Aviation Division was represented at three worldwide depot maintenance conferences, during which allocations for depot maintenance were discussed and assigned. As a result, the Fiscal Year 1969 program ended the fiscal year with \$268.8 million financed and \$25.1 million unfinanced.²⁵

Aviation Component Intensive Management System

The increased inventory and sophistication of Army aircraft in recent years made the requirement for asset knowledge increasingly important, but systems for gathering this knowledge were not successful due to untimeliness and incompleteness or inaccuracy.

Since 1966, the Aviation Component Intensive Management System (ACIMS) was instrumental in dealing with many of these problems and in June 1968, ACIMS received the commendation and

²⁴
DA, LOG/SD-ALSB, ltr, 23 May 1969, subj: Flight Delivery of Standard Army Aircraft.

²⁵
DA msg 891714, 26 Dec 1968, subj: Fifth World Wide Depot Maintenance Conference.

support of Mr. G. B. Russell, the Deputy Assistant Secretary of the Army for Installations and Logistics, who called for extension of the system to other category items. The Deputy Chief of Staff for Logistics (DCSLOG) recommended delay of such an extension until aviation items and procedures were completely worked out and running smoothly. Nevertheless, Secretary Russell lent his support to the expansion and perpetuation of the ACIMS concept and the system was scheduled for formalization in a revised regulation.
26

Special Project to Validate USARV
Fiscal Year 1969 OA Requirements
for Selected Secondary Items

To preclude the generation of long stocks of selected secondary items, DA directed the establishment of a team with representation from each NICP chaired by AMC to visit the 1st and 2d Logistical Commands in order to validate USARV requirements for the 1,000 secondary items which were forecast to require the greatest procurement dollars in Fiscal Year 1969. It was considered essential that DA be in the best possible position when required to authenticate and document the necessary procurement, so that adequate funds could be obtained.
27

26
(1) Reference Evaluation Report, Aviation Component Intensive Management System (ACIMS), Sep 1968, by USA Aviation Materiel Command. (2) AR 711-45, Management of Selected Aviation Repairable Components.

27
DA LOG/SPPD msg, DTG 131527Z, July 1969, to AMC, subj: Special Project to Validate USARV FY 69 OA Requirement for Secondary Items.

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The team of 21 individuals chosen for this survey team was hampered by lack of sufficient records and the necessity of considering unserviceable reparable items and, as a result, it failed to attain the team objective. Nevertheless, certain important recommendations grew out of this effort aimed at improving the distribution and recording of these assets by ADP equipment.

These recommendations received the concurrence of all commands involved. After the team returned, a gross requirements validation computation was made, but it was impacted by the absence of a full year Fiscal Year 1968 demand history as well as an unknown quantity of unserviceables. As a result of cancellations generated by team actions, DCSLOG-SS1B initiated a cost reduction action for \$16.686 million.

(C) Electronics Division

Project LAFFING EAGLE

(C) AMC was tasked to support the Army Security Agency (ASA) in the configuration of 18 RU 21D aircraft for Project LAFFING EAGLE, thereby providing an airborne, two-position HF-VHF homing type radio direction finding and intercept system. A contract

28

For a thorough analysis of the recommendations made by this team, see Annual Historical Summary, Directorate of Materiel Requirements, Aviation Division, FY 1969, pp. 20-24.

29

DA, DCSLOG/PE-PIFB, msg 844868, 21 Dec 1967, subj: Procurement and Aircraft Retrofit in Support of Project LAFFING EAGLE.

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was awarded to Beech Aircraft Corporation on 14 February 1968 and the first aircraft was delivered in October 1968. After completion of shipment of the last aircraft in May 1969, 16 aircraft were deployed to SEA while two remained in CONUS for training and further testing.

Standard Lightweight
Avionics Equipment

(U-FOUO) The Standard Lightweight Avionics Equipment (SLAE) was initially intended for installation on the Light Observation Helicopter (LOH) but subsequently the decision was made to install it in other types of aircraft, thus necessitating a name change. The program was previously designated LOHAP (Light Observation Helicopter Avionics Package).

(U) At the end of the year, there were 2,737 SLAE systems on contract to support the OH-6, OH-58, and OV-1D aircraft, and all were undergoing pre-production testing which was scheduled for completion during the 2d Quarter, Fiscal Year 1970. Full production buildup of all SLAE components was scheduled for February 1970 with contract completion anticipated by August 1971.

(U) Because of production problems and engineering modifications, the initial system production delivery slipped from January to August 1968. As a result, plans to install the SLAE in the 473d OH-6A were abandoned, but initial installation, less the AN/ARC-116 UHF AM radio, was made in the OH-6A, OH-58A, and OV-1D aircraft procured during Fiscal Year 1968. The AN/ARC-51BX

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replaced the AN/ARC-116 radio temporarily in the package. On 23 May 1969, approval was granted for conditional release of SLAE components, less AN/ARC-116.³⁰ The first operational aircraft were deployed to SEA in June 1969 and standard "A" classification of all SLAE components was projected for June 1970.

Airborne Command Consoles

(U) In April 1968, DA approved the United States Army, Vietnam (USARV) request for an additional 110 airborne command consoles.³¹ In May 1968, AMC took action to redesign the command console in accordance with USARV's request.³² The first redesigned model was completed and operational testing was performed by the U.S. Army Electronics Command (ECOM) in September 1968, with the first delivery reaching USARV in February 1969.

(U) Funds to cover the balance of the USARV requirement were released to ECOM on 13 February 1969 and by the end of the year, 83 consoles had been delivered to USARV.³³ The balance, 27, was scheduled for delivery by 30 August 1969.

³⁰ AMC msg 58066 to ECOM, 23 May 1969, subj: Conditional Release of Standard Lightweight Avionics Equipment (SLAE), less AN-ARC-116 UHF AM Radio.

³¹ (1) USARV msg 59557, 3 Sep 1967, to CINCUSARPAC, subj: USARV Requirements for Command Communications Consoles, AN/ASC-10 and AN/ASC-11. (2) DA msg (C), ACSFOR-AV 859817, 15 Apr 1968, subj: Command Communications Consoles, AN/ASC-10 and AN/ASC-11.

³² AMC msg 22756, 3 May 1968, to ECOM, subj: Command Console, AN/ASC-10.

³³ AMC msg 48452, 13 Feb 1969, subj: Command Console, AN/ASC-15.

Avionics Retrofit

(U) The worldwide Avionics Retrofit Program continued to progress satisfactorily during 1969 as important projects were completed in USARV and USARSO (United States Army Forces, Southern Command) at the beginning of the fiscal year. The continuing requirement within USARV for an avionics modification/retrofit capability was filled by an extension, through Fiscal Year 1969, of the Project ZYR contractor teams. This extension entailed the addition of avionics personnel to the USARV aircraft contract support program and the inclusion by USARPAC of funds into Fiscal Years 1969/70 funding programs for avionics retrofit. At the end of the year, 76 of 2,573 aircraft remained to be completed.³⁴

(U) In USAREUR, the original program of Project ZYR included the modernization of the total aircraft fleet to achieve communications compatibility with tactical ground nets and improved navigational capabilities. The program as then planned in consonance with DA guidance affected only the UH-1 and U-8 aircraft for complete retrofit of avionics. In order to provide the requisite compatibility for ground tactical communication nets, standard B and C aircraft were scheduled to receive the new FM Radio AN/ARC-131 only.

(U) At the end of the year, the program was delayed due to a review of aircraft exchange programs. The review resulted in a decrease of aircraft to be retrofitted in-country from 867 to 497

³⁴
DA (ACSFOR) msg 758656, 6 Apr 1966.

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due to planned replacement. A further delay was due to a change in contractual procedures and constraints and the need for approval of the Secretary of the Army for the \$2.1 million installation contract. The approval came at the end of the year and the contract award was scheduled for approximately 3 weeks later.

AN/PRC-25 and AN/VRC-12
Radio Sets for Vietnam

(C) The RVNAF Modernization and Improvement Program approved by the Secretary of Defense included 40,000 AN/PRC-25 and 7,800 AN/VRC-12 series radios for delivery through Fiscal Year 1974.³⁵ At the end of Fiscal Year 1969, 21,000 AN/PRC-25 radios had been delivered with an additional 14,000 scheduled for delivery in Fiscal Year 1970.³⁶ Delivery requirements under both programs constantly changed as the Military Assistance Command Vietnam (MACV) continued to assess RVNAF needs.

Second Generation AACOMS
Multichannel Equipment

(U-FOUO) The initial fielding of second generation Army Area Communications System (AACOMS) multichannel equipment to CONUS United States Strategic Army Forces (STRAF) units was made in July 1968.³⁷ This equipment provided simultaneous communications of up

³⁵
Memo, Secretary of the Army, 14 Mar 1969, subj: RVNAF Phase II Force Structure as approved by Sec of Def, 21 Mar 1969.

³⁶
Equipment Status Report—RVNAF Modernization and Improvement RCS SAOSA-105), 28 May 1969.

³⁷
DA msg 866012, DCSLOG/OSALSTC, 28 May 1968, subj: Second Generation AACOMS Multichannel Equipment for STRAF Units.

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to 12 voice conversations over a single radio and gave the field more reliable and better quality multichannel communications than that provided by earlier AACOMS equipment. Distribution of the final low capacity subsystem was scheduled to begin in the 1st quarter of Fiscal Year 1970 with shipments to USARV. Replacement of all first generation, low capacity equipment throughout the Army was scheduled for completion in Fiscal Year 1973.

Communications-Electronic Equipment for Domestic Disturbances

(U) In October 1968, DA requested that action be taken to reconfigure the battalion size communications-electronics packets prepositioned at certain locations to support Active Army or National Guard forces committed to civil disturbances.

(U) The reconfiguration, as completed in January 1969, increased the number of battalion packets from 20 to 60 and reduced the number of man-packed radios per packet. DA also requested that 100 Starlight Scopes (AN/PVS-2, a small night vision sight for use with individual served weapons) be prepositioned in support of domestic disturbances. Contracts were consummated to provide for 1 year's contractor maintenance support of the commercial communications-electronics equipment procured for use by Task Force commanders and support elements at objective sites.

38

DA msg DCSLOG-SDD-PIDB, 3 Oct 1969, to CG, AMC, subj: Reconfiguration of Battalion C-E Prepositioned Packets.

39

ECOM msg, AMSEL-DP-PL 126, 23 Sep 1968, subj: Procurement of Communication Equipment; Contract Nos. DAABO5-69-C-0238, DAABO-69-M-0260, and DAABO5-M-0258.

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Other Developments in Electronics [REDACTED]

(U) Fiscal Year 1969 marked several other noteworthy achievements of the Electronics Division. Maintenance of the Squad Radio AN/PRT4A/PRR9, other than minor repairs, was relegated to Lexington-Bluegrass Army Depot in order to insure maximum reparability of defective radios.⁴⁰

(U) Batteries for all types of radios were upgraded with the introduction of the magnesium battery which had a longer life in use, a longer life in storage, and did not require refrigerated storage. During Fiscal Year 1969 the magnesium battery was being issued only to Army users in SEA, but it was anticipated that all users (except possibly Military Assistance Plan users) would be using the improved cell by the end of Fiscal Year 1970.

(U) Also, during Fiscal Year 1969, arrangements were begun to create a special type of maintenance facility in SEA for the support of fixed-communication sites. These activities were known as Area Maintenance Support Facilities (AMSF). The basic concept was that each AMSF would support all communication sites in a given geographical area with direct access to CONUS supply sources. At the end of Fiscal Year 1969, there was one active AMSF in Thailand and two more being activated in Vietnam.

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DA Supply Bulletin 11-622, 29 May 1969, subj: Maintenance Concept Change Affecting Logistics Support for Receiving Set, Radio, AN/PRR9, Transmitting Sets, Radio, AN/PRT-4 and AN/PRT-4A and Use of Jiffy Bags.

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(S) Missile Division

Guided Missile PEMA Program

(U) At the close of Fiscal Year 1969, the PEMA Missile Program totaled \$686.5 million comprised of \$133.5 customer orders and \$533 million Army requirements. Only \$14.2 million for the Hawk Missile Program remained unreleased by DA for Fiscal Year 1969. In addition, savings of approximately \$32 million resulted from the Federal Republic of Germany (FRG) absorbing a pro rata share of engineering and indirect cost for Pershing ground equipment. Finally, cost reduction programs within the Missile Division, specifically in the Shillelagh Missile, resulted in a \$10 million additional savings.

(S) During Fiscal Year 1969, five Honest John battalions were inactivated with no replacing activations. The activation and inactivation schedule was projected through Fiscal Year 1974 and called for 11 additional Honest John battalions to be deactivated. Seven Lance battalions were to be activated during the same time frame. This will leave three Honest John battalions in Korea and one in CONUS.

(C) During Fiscal Year 1969, 25 Nike Hercules Army Air Defense Command (ARADCOM) firing batteries were inactivated along with five Hawk batteries as part of the DOD-directed phasedown of Army Air Defense Units. The beginning of troop pull outs in RVN also involved two Hawk battalions which were scheduled for completion of withdrawal in the 1st quarter of Fiscal Year 1970.

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Deactivation of these units was to follow immediately. The return of the first of these units, the 6th Bn, 71st Artillery prompted an inspection of the 272 Hawk missiles in the unit.

(S) A Program Change Decision (PCD) approved the inclusion of Lance in the Army force structure with a nuclear role. The PCD stated that the Lance would replace the Sergeant and Honest John in the nuclear arsenal, and provided the schedule for accomplishment of this transition. Lance deployment was scheduled to commence in Fiscal Year 1972 and was scheduled to be completed by Fiscal Year 1974.⁴¹

Guided Missile Overhaul Program

(U) The total Fiscal Year 1969 BP 2300 overhaul program was approved for \$46.4 million of which \$24.7 million was for organic and \$20.9 million for contract overhaul. The depot or organic schedule was met with the exception of one Hawk pulse acquisition radar. The contract production schedules exhibited considerable slippage. Hawk slippage was due to the increased workload occasioned by the SEA exchange program and the Hercules system delay was caused by the necessity of modifying the system, which required complete teardown of each major item.

(U) A total of \$5.3 million covering 1,304 major and secondary items was forward funded for induction of a portion of the Fiscal Year 1970 program which was to be completed during the first half of Fiscal Year 1970.

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PCD A-8-137 dated 10 Dec 1968.

237
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DRAGON Weapon System (XM47 Surface
Attack Guided Missile)

(C) The DRAGON Weapon System was organic to all infantry companies and provided medium-range lethal antitank/assault fire, and replaced the 90mm recoilless rifle. Under the existing plan, the first unit was to be activated in December 1972.

(U) In February 1966, the initial research and development (R&D) contract for this system was awarded to McDonnell Douglas Astronautics Company and it was later modified to cover the entire program. Successful firings during 1968 were offset by management problems. A reorganization in 1969 resulted in considerable progress and continued research, development, test, and evaluation (RDTE) funding.

(U) Consequently, \$10.1 million RDTE Fiscal Year 1970 funds were released to the U.S. Army Missile Command (MICOM) and \$2.1 million was expected to be released for developing the night sight. The Project Manager assumed that due dates would be met and the program completed.

(C) The AMP called for initial procurement of 6,000 missiles at \$34.1 million and 2,000 inert missiles at \$10.3 million in Fiscal Year 1972. First production delivery was scheduled for September 1972. An initial purchase of 476 trackers, 386 night sights, and related ground equipment for \$12.5 million, was slated for Fiscal Year 1972.

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PERSHING Ia Missile System

(C) To assure training equipment for units at Fort Sill and Redstone Arsenal, on 31 July 1968, authority for limited release of PERSHING Ia ground equipment was granted.⁴² This did not relax requirements for timely completion of tests and evaluation of PERSHING equipment. Initial production tests (IPT) were conducted in the spring of 1969 at Aberdeen Proving Ground and at Martin-Marietta Corporation.

(U) The results of the IPT showed conclusively that while the PERSHING Ia system was an advancement over the PERSHING I, it had serious deficiencies in design and quality control that would have to be remedied. It was therefore judged unsuitable for release until modifications to the system were verified by check test as prescribed by the U.S. Army Test and Evaluation Command (TECOM).

(U) This problem was again considered at the PERSHING Ia pre-in-process review (IPR) and the pre-deployment conference conducted at MICOM on 19 and 20 May 1969.⁴³ Based on the conclusion that the new system had significant advantages over the PERSHING I, the AMC recommendation that the PERSHING Ia be released and deployed as scheduled was approved 16 June 1969.

⁴²
1st Ind, AMCMR-S, dated 31 July 1968, to AMCPM-PE-CA ltr dated 14 June 1968, subj: Plans for Initial Production Testing and Request for Limited Release of PIa Weapon System.

⁴³
See Trip Report dated 23 May 1969, AMCMR-SS, subj: Report of Visit to MICOM Concerning the PERSHING Ia Pre-In-Process Review (IPR) and Predeployment Conference.

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PERSHING Project SWAP

(C) The replacement of PERSHING I with PERSHING Ia ground equipment required considerable effort during Fiscal Year 1969. The basic consideration was to accomplish conversion and training without loss of combat readiness.

(U) Accordingly, the placement of the entire package of PIa equipment was to be accomplished first, at all unit sites. Then the troops would undergo an extensive training period on the new equipment. Following the training period the old PI equipment was to be withdrawn. By the end of the year this objective was largely met in the 2/44th CONUS battalion and conversion of the remaining PERSHING I battalions were scheduled to begin in Fiscal Year 1970.⁴⁴

Redeye Program

(C) The entire Fiscal Year 1969 PEMA program for the Redeye system was placed in a deferred status pending an OSD decision on buy-out in Fiscal Year 1969 vs Fiscal Year 1970. In mid-July 1968, DA released the program authority to procure 2,400 missiles at a rate of 200 per month, which was 800 per month below the economic procurement quantity. At the close of Fiscal Year 1969, the position of the Secretary of Defense provided for the termination of the current configuration REDEYE with the Fiscal Year 1970 purchase. This was expected to meet requirements through Fiscal Year 1975. The replacement system was scheduled for Fiscal Year 1977. In

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2d Ind, LOG/SD-SWB, 12 June 1969, subj: Phase-out Plan for PERSHING PI System.

UNCLASSIFIED

240
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addition to the deferment, the program was also reduced \$1 million, but this had no impact on materiel support for troop deployments or operational forces.

(U) The REDEYE Block III XM41E2 weapon system was approved for issue to the arctic zone on 22 October 1968 and to the tropic zone on 15 January 1969. Special instructions for use in extreme climates were issued and the systems were distributed to troops on a worldwide basis, except for United States Army Forces, Southern Command (USARSO) which was scheduled to receive the REDEYE during the 1st quarter of Fiscal Year 1970.

SHILLELAGH

(C) Conditional worldwide release of the Shillelagh missile system and support equipment for issue to troops was approved on 26 November 1968.⁴⁵ Conditional release was based on minor deficiencies which TECOM evaluation considered as not seriously degrading system performance.⁴⁶ Consequently, deployment of the M551 Sheridan to USARV, USAREUR, and the Eighth Army (Korea) was authorized on 6 December 1968.⁴⁷

(U) The deployment to USARV began in January 1969 and was

⁴⁵
MICOM ltr, AMCPM-SM-M, 20 Nov 1968, with 1st Ind, AMCMR-SS, 26 Nov 1968, subj: Conditional Release of Shillelagh for Issue to Troops Overseas.

⁴⁶
TECOM ltr, AMSTE-BB-S, 27 Nov 1968, subj: Suitability for Conditional Release to Troops of Sheridan Weapon System, M551.

⁴⁷
DA msg 889720, 6 Dec 1968, subj: Deployment, M551 Sheridan to USARV, USAREUR, and Eighth US Army.

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to be accomplished in two stages. The first stage, consisting of 54 vehicles, was employed in a theater evaluation of the M551 in SEA. The Sheridans sent to SEA were modified with Belly Armor Kits, Commanders Gun Shields, 1 KW Searchlights, and the Closed Breech Scavenger System. They contained only two guidance and control group components that provided tracking capability. Stage II provided for additional vehicles to bring the total in SEA to 306 TOE vehicles and 36 maintenance vehicles. The float quantity deployment schedule was to be worked out with the theater commander.⁴⁸ Initially, the Sheridan used conventional ammunition. A decision on deploying the Sheridan with the Shillelagh missile to SEA was still pending.⁴⁹

(C) Deployment to USAREUR was to be done in three stages, after an extensive theater evaluation. These vehicles were scheduled to receive the searchlight gun shield and closed breech scavenger systems as well as two extra batteries to provide a 3-hour silent standby capability. After deployment, the vehicles were scheduled for retrofit with a laser rangefinder.⁵⁰

(C) The initial support for the Shillelagh missile system involved direct exchange of defective guidance and control components (Black Boxes). To facilitate maintenance, two forward

⁴⁸

DA msg 906293, 23 Apr 1969, subj: Additional Deployments of Sheridan Weapon System, M551 to USARV.

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DA msg 889720, 6 Dec 1968, subj: Deployment, M551 Sheridan to USARV, USAREUR, and Eight US Army.

⁵⁰

Ibid.

UNCLASSIFIED

242
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area contact teams equipped with testing devices were attached to the support groups. After August 1969, the Land Combat Support System was scheduled to take over support of Shillelagh with later guidance pending final approval of the Shillelagh Missile System Special Support Plan.

Shillelagh Problems

(C) On 30 April 1969, the Commander in Chief, U.S. Army, Europe (CINCUSAREUR) reported three flight failures of Shillelagh missiles that were suspected of being caused by sun angle interference that was due to infrared emissions from the sun. An investigation revealed that initial TECOM evaluation had shown that there had been no missile failures attributable to sun angle effects. It was expected however that firings directly into the sun, or with the sun directly behind the missile in flight, would be degraded. All users were informed of this marginal system limitation and a proper entry was included in a revision to TC-17-16.

(C) In May 1969, during a field test to determine the comparative combat effectiveness of the Shillelagh missile and the 105mm APDS

⁵¹
MICOM Shillelagh Missile System Special Support Plan, 1 Nov 1968.

⁵²
CINCUSAREUR msg SX-2986, 30 Apr 1969, subj: System Limitation.

⁵³
(1) TECOM ltr, AMSTE-BB-S, 3 Oct 1967, subj: Shillelagh Suitability for Troop Issue Under AMCR 700-34. (2) AMCSA-PM msg 56407, 7 May 1969, subj: System Limitation (Significant Action Submission, 9 May 1969).

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round, radio interference from the organic communication equipment affected Shillelagh performance. Evaluation of the problem revealed that radio transmissions from the organic Sheridan transmitter during missile flight degraded the missile performance. ⁵⁴ The solution was found in substituting better shielded cable in the radio transmitter. Although this solution was still being tested, indications were that this change would resolve the problem.

Nike Hercules

(C) After being deferred in 1968, the MOHEC Program to insure the mission capability of Nike Hercules through the 1970's was again requested in the President's budget for 1969. The improvements requested included electronic counter-countermeasures, ability for improved tracking at low altitudes, and development of a new high explosive cluster disc warhead with a significant increase in kill capability. Although the system went through considerable cost reduction procedures, it had not been approved by DA at the end of the fiscal year.

(C) Nevertheless, during Fiscal Year 1969, AMC approved the release of a \$15.0 million program of Nike Hercules Anti-Jam Improvement Modification Kits which provided the weapon with an electronic counter-countermeasure capability. The system was

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MICOM msg, AMCPM-SM-EV-147-69, 21 June 1969, subj: Shillelagh Missile System (Significant Action Submission, 27 June 1969).

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scheduled for application during Fiscal Year 1970 and 1971 to 102

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Nike Hercules Radar Systems for worldwide deployment.

(U) Mobility Equipment Division

PEMA Major Items Programs

The Fiscal Year 1969 Budget Request for the U.S. Army Mobility Equipment Command (MECOM) items was \$286.3 million, of which DA and AMC released \$259 million, a 4 percent decrease compared with Fiscal Year 1968. The Fiscal Year 1969 program mainly covered construction equipment, generators, and materials handling equipment to meet the requirements of RVN modernization, standardization in SEA, and USARV losses. As a whole, this PEMA program involved the management of 88 budget lines, including the submission to DA of over 40 reprogramming requests and the acceptance and processing of 66 DA program changes. These items did not include program actions of over 200 major items procured under AMC-delegated authority.

Army Stock Fund

The ASF Program for ground forces support materiel reflected a reduction from Fiscal Year 1968 due to a decrease in stocked items managed and reduced demands from customers, especially SEA. The initial sales program of \$91.2 million was reduced with various budget reviews to \$63.8 million, reflecting a decrease of 7,924 in total items managed and 8,289 items in stock.

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1st Ind, AMCMR-SA, 6 June 1969, to AMCPM-HE-M, subj:
Request for Authority to Issue Satisfactory Materiel Nike Hercules
Anti-Jam Improvement Modifications, 27 May 1969.

The peacetime obligation [REDACTED] the initial program for provisioning requirements, and the on-hand inventory were similarly reduced and net sales for the year approximated purchases. 56

PEMA Secondary Items

In contrast to the decrease in ASF-managed items during Fiscal Year 1969, the secondary items program increased due primarily to an increase in the number of managed items, some of which were transferred from the stock fund. Other increases resulted from logistical transfers from DSA. Nevertheless, reductions in the issue program that were due to the shortfall in forecasted demands and in the peacetime obligational program were required, necessitating a \$5.9 million advance from the Fiscal Year 1970 program. The provisioning obligational program was increased during the year from \$1.5 million to \$2.8 million and \$2.7 million of this was obligated. On-hand inventory also in- 57
creased during the year from \$51.1 million to \$75.3 million.

Mobility Equipment BP 2300 XO/KO Depot Maintenance Program

As a result of the reorganization of Headquarters, AMC, in July 1968, the Mobility Equipment Division assumed responsibility for the depot maintenance program. In July, DA directed that depot maintenance be performed under the Army Industrial Fund concept. This resulted in a program shortage because DA did not

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(1) TAG ltr, no date, subj: Army Stock Fund Operating Program for FY 1969 (RCS CSGLD-111(R2)). (2) DA msg 912212, 11 June 1969, subj: ASF Operating Program, FY 1969.

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(1) TAG ltr, no date, to AMC, subj: FY 1969 PEMA Secondary Item Operating Program. (2) TAG ltr, 30 June 1969, to AMC, subj: FY 1969 PEMA Secondary Item Operating Program, Change 3.

make provisions for additional guidance for work in progress. This shortage was made up in October however, and realignments in February and May 1969 matched the workload with available funds.

The modernization of equipment for the ARVN caused unusually large unprogramed demands, especially in the requirements for Landing Craft Mechanized (LCM-8) and the 20-ton Truck Mounted Cranes. The landing craft were overhauled and met the required shipping schedules but at the end of the year the 20-ton cranes were being withdrawn from reserve forces or were in depot overhaul. Nevertheless, all indications pointed toward the successful accomplishment of scheduled shipping.

Mobility Equipment OASIS Items

Fiscal Year 1969 represented the first full year of operation under the OASIS concept and there was a marked improvement during the year in the management of OASIS items at MECOM. Initially, the OASIS item managers were in separate OASIS branches but when this proved unworkable, MECOM began moving into an item or systems oriented management structure. The advantages of this system were manifold but focused on several crucial advances, such as more meaningful summaries of the stratifications; improved relationships between repair parts and end items/systems; better coordination on procurements, repairs, and disposal direction; and improved management coordination with other organizational elements of the command.

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During Fiscal Year 1969, these revised management procedures led to a noticeable decline in requisitioning objectives, a decline in the number of items at zero balance and the dollar value of dues out, and particularly close scrutiny of several items for Vietnam. These indicators all pointed to the increasing effectiveness of the OASIS system.

(C) Munitions Division

M513 Proximity Fuze Restriction

(C) Following several in-bore premature detonations of 105mm howitzer ammunition, Picatinny Arsenal and Harry Diamond Laboratories initiated a joint investigation into the causes. In the meantime, a worldwide restriction on the use of 105mm ammunition with the M513 proximity fuse was placed into effect.

(U) Although tests were scheduled to investigate the causes of this malfunction, the lack of necessary funding and failure to receive the affected lots from Vietnam delayed the beginning of this work until approximately 1 July 1969. The investigation was scheduled for completion by 1 October 1969 barring further complications.

40mm Non-Self Destruct Cartridge

(C) This cartridge was developed in response to a USARV request for ammunition to be used in M42 anti-aircraft guns against ground targets. Although the ammunition was developed, it had an unacceptably high dud rate of 50 percent, and on

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16 December 1968 AMCMR prohibited shipment of the ammunition to SEA.

(U-FOUO) Just prior to the end of Fiscal Year 1969, the U.S. Army Munitions Command (MUCOM) received several lots of this Navy designed and produced ammunition, tested it and concluded that the misfires were due to overstabilization of the projectile in flight which prevented it from nosing over and landing on the fuse. The dud rate was found to increase as the range increased.

(U-FOUO) Two alternatives to this unsatisfactory performance were apparent against the background of USARV requirements. The first was the development of a dud-free projectile within a period of approximately 2 years, after which the Navy would require 12-13 months leadtime for production.

(U-FOUO) The alternative to this minimum 36-month delay was to provide USARV with a non-self destruct (NSD) cartridge with an inherent dud rate of 50 percent. The Navy had 250,000 such rounds available and the self-destruct (SD) round could be made an NSD by blocking the tracer element, at a cost of \$2 or \$3 per round. On 18 June 1969, DA was advised of this situation. No AMC action was contemplated pending receipt of guidance from DA.

XM494E3 105mm Anti-Personnel
Tank Cartridge

(C) This round, designed for use in the M60 series tank with the 105mm gun cannon, was also plagued with fuze difficulties during Fiscal Year 1969 and as a result none of the Fiscal Year 1968 scheduled deliveries could be made. Although the shipment of

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M60 tanks to SEA and the production of thousands of rounds was contingent upon resolution of this fuze problem, no solution had been found by the end of the year.

(C) Nevertheless, it was expected that by 1 September 1969 TECOM would provide a conditional launch safe release and a statement on the suitability for issue of the XM494. AMC was scheduled to advise DA of the feasibility of supporting the M60 tank deployment with XM494 cartridges.

2.75 Rocket Flechette Warhead (WDU-YA/A)

(C) This warhead was released for issue in SEA on 9 August 1968 and 2,300 rounds were sent to RVN. Combat experience proved this warhead to be highly effective, especially against targets hidden within jungles, and the units involved submitted requirements totaling 20,000 per month.

(U) Subsequently, DA approved the request for 200,000 warheads. Production was on schedule and no problems were anticipated as the year ended. To supply the Army until warheads became available from production, the U.S. Air Force provided the Army with 80,000 flechette warheads as an advance.

M72A1E1 66mm Rocket (LAW)
and Training Device

(U-FOUO) This weapon experienced considerable turbulence during Fiscal Year 1969 due to revised delivery schedules and funding difficulties. The M72A1E1 improved LAW round was scheduled for initial delivery in October 1969 but a revised delivery

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schedule on the M18E2 warheads pushed this date forward somewhat and as a result first deliveries were anticipated in January 1970.

(U-FOUO) The Fiscal Year 1970 Army program was submitted for 329,000 66mm LAW M72A1E1's. Of this total OSD approved 100,000 and deferred 229,000. DA/ODAM (Office of the Director of Ammunition) was advised by Headquarters, AMC, that a minimum quantity of 440,000 M72A1E1's was required to maintain a production base through the 1970 funding leadtime.

(U-FOUO) Meanwhile, the new round was subjected to an extensive in-country evaluation by USARV under the ENSURE program. A total of 6,002 rounds had been sent to SEA by March 1969, but at the end of the year AMC had not received the results of the USARV evaluation.

(C) The development of a training launcher and training round for the LAW system proceeded satisfactorily in 1969 with the introduction of the XM190 rocket launcher and XM73 35mm sub-caliber practice round anticipated in Fiscal Year 1970. When this round and launcher became fully operational, they would allow commanders to avoid the necessity of using live rounds and conventional launchers in training, thereby realizing considerable savings in ammunition. In April 1969, a proposed Limited Production (LP) action was submitted for the training system that recommended initial procurement of 1,250,000 XM73 rockets and 6,500 XM190 launchers. Delivery of the item was expected to follow 9 months after approval of LP action.

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152mm Conventional Ammunition

(C) The XM657 high explosive (HE) round was developed as an alternate backup cartridge to the original XM409 HEAT-MP. During engineering testing of the XM657 a downrange premature firing and a separating tracer adapter downrange was experienced and as a result safety release for troop issue was delayed. Since MUCOM had loaded sufficient ammunition to satisfy initial theater stockage requirements, no further loading was planned pending release of a TECOM suitability statement. Even after the receipt of such a statement, full production would depend on an in-theater evaluation and USARV recommendations.

(C) At a meeting on 29 April 1969, AMC and DCSLOG representatives determined the validity for the requirement but stipulated that suitability for release would be made after a USARV in-theater evaluation. On 1 May 1969, a decision meeting was held at TECOM. As a result of this meeting, it was decided that a conditional suitability statement, which would include a restriction on overhead firing, would be issued. This was accomplished on 9 May 1969 and AMCMR sought approval from CINCUSARPAC to immediately ship the rounds in question. This approval was still pending at the end of the fiscal year and since the issue of the XM 657 round was suspended pending the SEA evaluation, load assembly, and pack of the cartridge was also suspended.

Protective Mask M17/M17A1

(C) Several severe problems with the M17/M17A1 Protective

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252
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Mask necessitated closer DA control of this item during Fiscal Year 1969. Production problems arose, contractor performance suffered, and the facepiece molding process could not be adequately developed. Although several important remedial steps were taken, previous production slippages could not be made up. Consequently, exploration for a second supply source was begun. Although procurement of 444,000 masks was approved, execution of the program was limited pending the outcome of the second supply source study.

(C) Loss rate figures for SEA, which varied from 27,000 to 5,000 per month were also a pressing problem. USARPAC and USARV could not reconcile the differences and an impact on SEA requirements resulted. In response, AMC recommended the protective mask as a candidate for the Closed Loop Support (CLS) Program but USARPAC did not concur, citing the downward loss rate trends and increased in-theater repair capabilities as justification. The loss rate problem remained unsolved at the end of the year, however.

Other Munitions Items

(C) During 1969, several other weapons required management attention to assure their availability on schedule. The M151 and M229 2.75-inch rockets experienced high rates of consumption in SEA. To forestall a shortage, a reprogramming action and an action to increase the Congressional Base were instituted successfully and an adequate supply was thus assured.

(U) Pursuant to a request from SEA, the XM191 Portable Flame

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Weapon was placed under development and initial requirements were expected to be met in Fiscal Year 1970. Production also began in February 1969 on the new M33 grenade, designed to replace the M26 grenade, which was to be phased out. To insure a supply of grenades, the M26 and the M33 were scheduled to be produced concurrently, with M26 production being gradually decreased in late calendar year 1969.

(U) Finally, the division responded to a need for a more efficient and safe aircraft flare by converting the MK24 flare to the MK45. A LP-type classification was approved for the MK45 in May 1969 and classification as standard A was expected during the third quarter of Fiscal Year 1970. The Navy handled production of this flare through a military inter-departmental procurement request (MIPR) process.

(C) Vehicle Division

Tire Retreading Program—SEA

(U) Because of the rapid deployment of forces to SEA, tire requirements for vehicles in-country initially had to be met almost exclusively from new procurement. In January 1969, DCSLOG directed AMC and USARPAC to take immediate action to exploit the possibilities for retreading tires in SEA. TACOM was made responsible for conducting a survey of the SEA situation and a joint AMC/USARPAC survey team examined military and commercial

58

DA msg 895737, DTG 312212Z Jan 1969, subj: Recapping of Automotive Tires.

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facilities in Taiwan (ROC) and Korea (ROK) during April 1969.⁵⁹

This survey led to a contract to produce, by July 1969, two sizes of tires in support of the vehicle rebuild program from existing ROC capabilities.⁶⁰ Additional equipment was purchased with Fiscal Year 1969 PAC funds for installations in the ROCA facilities to permit expanded operations starting in January 1970 and a corresponding equipment buy was anticipated for use of the ROKA contractor early in Fiscal Year 1970. At the end of the year, the survey team was reviewing facilities in Vietnam, Okinawa, and Korea and training personnel in USARV for the selection and classification of tires for the program.⁶¹

Trucks

(U-FOUO) During Fiscal Year 1969, several new contracts were awarded for the XM705 Cargo Truck, the XM737 Ambulance, and the XM747 Low Bed 52 $\frac{1}{2}$ -ton HET Semitrailer. The Fiscal Year 1969 program for modular transporters in the intermodal system was released to the U.S. Army Tank-Automotive Command (TACOM) on 6 June 1969. The initial procurement of the GOER family was not approved, however, pending demonstration of cost effectiveness and submission of proposed trade-off between GOER's and 5-ton trucks.⁶²

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AMCMR-VC ltr, 13 Feb 1969, subj: Recapping of Tires.

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DA msg 907745, DTG 052113Z May 1969, subj: Recapping (Retreading) of Automotive Tires.

⁶¹

DA msg 281846Z July 1969, subj: Retreading of Automotive Tires.

⁶²

DA PCR 2-9-015, FY 1971-74 Review, 3 Mar 1969.

(U) The AMC request to type classify the M151 improved truck was rejected by the Assistant Chief of Staff for Force Development (ACSFOR) on 8 May 1969 despite public and congressional interest in the safety of the M151. Since TECOM indicated the safety refinements to be a genuine advance, AMC requested reconsideration of the ACSFOR decision, an action which was pending at the end of the year.

(U) In response to an urgent request for engines for the M602 Truck from the Commander, United States Military Assistance Command Vietnam (COMUSMACV), TACOM took action to exercise its option for delivery of an additional 600 engines. TACOM negotiated with the contractor for accelerated delivery, starting with 113 engines in July 1969, to solve the immediate deadline problem. Further airlifts were anticipated to alleviate the critical situation.


Armored Personnel Carriers

(U) Several important developments affected the M113-M113A Armored Personnel Carrier (APC) program during 1969. The incidence of mine damage to the front portion of these vehicles in RVN necessitated the development of additional belly armor to provide more personnel protection and the rerouting of several fuel lines

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(1) Ltr, USATECOM, AMSTE-BB, 13 June 1969, subj: Interim Report on Product Improvement Test of Truck, $\frac{1}{4}$ T, M151 Series w/ Modified Rear Suspension (MIRS) System USATECOM Project Nos. 1-7-4030-25/33. (2) Ltr, AMC, 26 June 1969, subj: Limited Production Type Classification of $\frac{1}{4}$ T Trucks, M151 Series.

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 in the M113A1 vehicle to minimize the danger of fire and explosion.

A total of 2,145 kits to accomplish these purposes was requested by USARV, with 200 kits required immediately. A letter order contract was awarded to the Food Machinery Corporation (FMC) for 250 kits with initial production to begin in May 1969. On 25 April 1969, the remaining 1,625 kits were contracted and initial delivery was expected in September.

(U) Recovery kits for the Armored Personnel Carrier (APC) family had also been requested by USARV through the ENSURE system. After successful testing, 78 kits were shipped to Anniston Army Depot for installation on M113 APC's during rebuild time, which was anticipated to be in the fall of 1969. An additional 34 kits were procured and shipped to the FMC plant for installation in the M113A1 at the time of production, thereby converting the M113A1 into an XM806E1.

(U) To fulfill another requirement relating to support of ARVN forces during 1969, procurement of 809 A kits and 105 A kits to upgrade the armor, gun shields, and firepower of the M113 APC began. The program to further dieselize the M113 fleet in both USAREUR and USARPAC suffered a setback in 1969, however, due to unexpectedly heavy USARV losses in the spring of 1969 and the additional time required by USAREUR and USARPAC to resolve their logistics support plans. The replacement program was therefore deferred until Fiscal Year 1970.

(C) Finally, the retrofit program designed to equip the

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M114 command and reconnaissance vehicle with the Hispano Suiza, M139 Gun (Vehicle Rapid Fire Weapons System (VRFWS)), was initiated but not stabilized due to several factors, such as slippage in schedules because of low overall funding priority, a change in standards for overhaul, and failure of TECOM to approve the full release under the provisions of AMCR 700-34.

XM706/E1 Armored Car

(U) The use of this armored car by both U.S. and ARVN forces had proved it to be invaluable as a convoy escort vehicle in SEA. The Air Force praised the vehicle for its versatility in mobile perimeter defense, and as a result the future of the XM706/E1 in the U.S. Army and other services seemed assured. Approval by ACSFOR for additional production was expected to be completed in January and March 1970.

1790-2A Engines for M60/M60A1 Tanks

(U) Due to an unexpected surge in monthly demands, a problem arose concerning engines for these tanks. There were 496 unserviceable engines in Europe. The Commanding General, USAMC, Europe reported 38 M60 tanks deadlined for lack of engines, with zero stocks of serviceable engines within the theater.

(U) This problem was alleviated by the shipment of 50 engines to Europe, 42 by airlift and eight by priority surface shipment. In addition, the feasibility of overhauling 235 engines with cracked crankcase housings was made apparent and final determination regarding funding was to be made at the 7th Worldwide Maintenance Conference.

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(C) Weapons Division

Fiscal Year 1969 PEMA Program

(C) The Fiscal Year 1969 PEMA Major Items Program consisted of \$360 million which was programed to procure 799,275 end items, including machine guns, mortars, rifles, artillery, and tanks. The medium tank family accounted for 38 percent of total procurement while the M16 rifle remained the largest single item at \$129 million.

(U) PEMA secondary peacetime authority was \$11.4 million, the bulk of which supported the M551 Sheridan, the Field Artillery Digital Automatic Computer (FADAC) system, the M6 recoil tool set components, and shop equipment. The total program tripled over the previous year as a result of the realignment of 640 items, each valued at \$1,000 or more, from the Army Stock Fund. In addition, PEMA Secondary Provisioning authority totaled \$7.8⁶⁴ million of which 75 percent was intended for the VULCAN system. OSD budget cuts necessitated the reprogramming of peacetime funds until the additional authority required could be obtained. When⁶⁵ funds were released in April the program objectives were met.

(C) Finally, the ASF peacetime authority totaled \$127 million including \$24 million for the support of the modernization of the

⁶⁴
AMC msg 60594, 20 June 1969, subj: FY 1969 PEMA Secondary Operating Program.

⁶⁵
DA msg 905666, 18 Apr 1969, subj: PEMA Secondary Item Operating Program.

259
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RVN Army. During the year, all objectives were essentially accomplished. The most procurements were made for the M16A1 rifle and the 175mm Gun Tube. Continuing emphasis placed on inventory reduction through issue and sale of usable inventory and disposal of excesses resulted in a \$28 million transfer to Property Disposal Officers (PDO's).

Depot Maintenance Program

(U) In July 1969, the Weapons Division assumed the responsibility for the Depot Maintenance Program which concerned major and secondary items in the following categories: Fire control and artillery, small arms, combat vehicles, aircraft armament, and tools and equipment. The Fiscal Year 1969 worldwide program items controlled by the Weapons Division totaled \$54.1 million.

(U) During the year, several conferences were held to consider the Fiscal Year 1970 worldwide program requirements. As a result of these meetings the Weapons Division planned a program of \$65.1 million, of which \$60.1 million was approved by DA.⁶⁷

XM163 Anti-Aircraft Artillery Gun (Vulcan)

(U) Based on the Gatling gun principle, the Vulcan was a six-barrel weapon firing up to 3,000 rounds per minute. It was

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AMC msg 58979, 5 June 1969, subj: ASF Operating Program FY 1969.

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DA ltr LOG/MCD, 10 June 1969, subj: BP 2300 Depot Maintenance Program.

UNCLASSIFIED

260

UNCLASSIFIED

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designed to provide field commanders with low altitude air defense in the forward battle areas. Mounted on a modified M113A1 APC, the Vulcan complimented the CHAPARRAL in the composite Vulcan/CHAPARRAL air defense battalion.

(U) A quantity of 59 self-propelled X163 Vulcans was approved for release to the CONUS training base at Fort Bliss, Texas, on 14 February 1968. Subsequent releases of 64 guns were made on 6 January 1969 and 7 May 1969 to meet CONUS activation requirements.⁶⁸

(C) The Vulcan system had financial difficulties during 1969, as the final budget reduced Vulcan expenditures from \$9.2 million to \$2.1 million on the premise that programing included only those systems scheduled for SEA deployment in Fiscal Year 1969. This conception made no provision for the long leadtime required to provision highly technical tools, test equipment, and repair parts.

(C) As a result, the Weapons Division immediately instituted a reprograming action requesting the restoration of the \$7.1 million. DA, however, returned the action, requesting that AMC⁶⁹ furnish an offsetting reduction from another program. After a

⁶⁸
(1) ACSFOR msg 851405, 132306Z Feb 1968 and AMC 1st Ind, 14 Feb 1968, to AMCPM-CVADS, subj: Authority to Issue Satisfactory Materiel (Gun, AAA, SP, 20mm XM163-Vulcan). (2) AMC, DF, 6 Jan 1969, to AMCPM-CVADS, subj: Authority to Issue an Additional Quantity of the Gun, AAA, SP, 20mm, XM163 (Vulcan). (3) AMC, 1st Ind, 7 May 1969, to AMCPM-CVADS, subj: Request for Authority to Issue Satisfactory Materiel, Gun, Air Defense Artillery 20mm, XM163.

⁶⁹
DA ltr, 29 Jan 1969, subj: Coordination of Change to Status of Approved Program.

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review of the program, AMC cut the original request to \$7.6 million and asked authorization of an increase of \$4.1 million, which was ultimately approved by DA.⁷⁰ An additional \$1.4 million was later diverted from other programs to fully cover the Vulcan requirements.⁷¹

M73E1 Machine Gun

(C) After the closing of Springfield Armory, the General Electric (GE) Corporation took over the sole source production of the M73E1 machine gun while utilizing the plant and equipment of Springfield Arsenal. Production deliveries by GE began in July 1968 and 594 weapons were produced and accepted through October. In November 1968, however, these guns failed to pass a reliability test. Although production continued through February 1969, no weapons were accepted after the test failure.

(C) This situation was rectified however, when a U.S. Army Weapons Command (WECOM) task force team assisted the contractor in determining the malfunction. After corrections were made all production lots were accepted. Production resumed in May 1969 and was completed on schedule.

Dieselization Projects

(C) In March 1969, USARPAC requested AMC to assist it in

⁷⁰
DA msg 905666, 18 Apr 1969, subj: FY 69 PEMA Secondary Item Operating Program.

⁷¹
ED 69-306 dated 21 Apr 1969.

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262
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preparing a plan to dieselize the U.S. Tank Fleet in Korea. During a meeting in Hawaii from 3-7 March 1969, AMC and USARPAC representatives developed a plan to dieselize M48A3 tanks received from Vietnam after their replacement there by M551 armored reconnaissance vehicles. This plan was not approved by ACSFOR, however, and the M60A1 tank was offered to USARPAC from production sources to accomplish the dieselization during January-December 1970.⁷²

(C) AMC was not consulted as to whether it could support a dieselization with the M60A1. The consensus of opinion within WECOM was that such a step was practical because AMC could furnish support except for some specific rounds of ammunition. Consequently, AMC notified DA in June 1969 that it was able to accomplish such a mission.⁷³

Heavy Duty High Pressure Cleaning
Equipment for Vietnam (ENSURE 318)

(C) To support current and anticipated T-Day retrograde requirements, USARV, in concurrence with USARPAC, submitted an urgent request for 45 high pressure cleaners. A cleaner manufactured by American Water Blaster, which had been tested in CONUS depots, was recommended to USARV. Subsequently, ACSFOR received approval from USARV to supply six cleaners together with 12 months supply of repair parts and operator maintenance manuals. Acting

⁷²

DA msg 905390, 16 Apr 1969, subj: Modernization/Dieselization of USA Eight Tank Fleet.

⁷³

AMCMR ltr, 5 June 1969, to DA, subj: Modernization/Dieselization of USA EIGHT Tank Fleet.

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as technical advisers, personnel from WECOM were to accompany the first units. The procurement of the remaining 39 cleaners was held in abeyance pending successful testing of the six cleaners in RVN.

ARVN Modernization Weapons

(C) The supply of weapons to modernize the Vietnamese Army received intensive management during Fiscal Year 1969 and a total of 27 major weapons or integral parts of weapon systems met COMUSMACV's required time schedule. The entire modernization program was scheduled to run through Fiscal Year 1974 with the total dollar value projected at \$207.5 million. By the end of Fiscal Year 1969 a total of \$162.5 million had been delivered against the total program.

New Releases and Deployments

(U) Several new items were released or deployed by the Weapons Division during 1969. The XM6 Airmobile Artillery Firing Platform, designed for mounting 105mm howitzers in water and rice paddies was conditionally approved for release to SEA only on 9 October 1968. It subsequently received a full release on 18 March 1969. A USARV request for 30 additional platforms was approved as an LP classification for a one-time buy.

(C) The M728 Combat Engineer Vehicle was initially distributed to USARV, after having been restricted in distribution to USAREUR only. However, deployment had to be restricted to a quantity of eight, to a reduced ammunition rate, because of

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insufficient 165mm HEP M123 ammunition to support the required supply rate. Further shipment of these vehicles was anticipated during early Fiscal Year 1970 as well.

(C) Finally, the M36 Radar Chronograph, which was highly useful in providing muzzle velocity correction data for fired weapons was approved for release in August 1968. Twenty were issued to USARV in October 1968. Other distributions were made to Korea and CONUS STRAF units.

Administrative Matters

(U) The most important regulation change involving weapons was a revision of AR 700-100 which covered sales of ordnance property to individuals, non-federal agencies, institutions, and organizations. By the terms of this revision, Army support for civilian pistol programs was terminated and all clubs having government-issued pistols were directed to turn them in to the Army Supply System. Only the National Match Grade M1 rifle was available for sale to National Rifle Association (NRA) members, who were also members of DCM-affiliated clubs. Furthermore, the sale of ammunition to individuals was no longer authorized.

(U) The M113 Gun Tube Product Improvement Program continued during Fiscal Year 1969, with emphasis on longer durability of the gun tube, which had been limited to a 400 round Equivalent Full Charge (EFC) rating. The new M113E1 autofrettage tube was capable of withstanding a 1000 round EFC. In July 1969, 12 M113E1

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tubes were sent to Vietnam for testing and each carried a preliminary 700 EFC round life rating. A final EFC rating was to be made following tests.

(C) A system status evaluation (SSE) of current tank programs was conducted in May 1969. Among the important findings were the decisions to continue procurement of M60A1 Tanks with phased-in product improvements; to review the desirability of further procurement of the M60A1E2 Tank with the formulation of the Fiscal Year 1972 budget; and to recommend not to procure the Chrysler "K" Tank during the Fiscal Years 1971-73 time frame because of several factors, including excessive weight and lack of adequate space.

(C) Finally, a Special Combat Vehicle Program Review was held at Aberdeen Proving Ground to present alternatives to the Fiscal Year 1969 tank program which would reduce the quantity of M60A1E2 chassis to be stored and would increase the availability of the M60A1 Tank. After five alternate programs were discussed, the general consensus was that the Army should provide the 243 M60A1E2 chassis in the Fiscal Year 1969 program for the Fiscal Year 1970 M60A1 program as Government-furnished equipment. This alternative was approved by the Vice Chief of Staff on 12 May 1969.

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CHAPTER VII

(U) DISTRIBUTION AND TRANSPORTATION

Organizational Changes

In June 1969, the overall mission of the Directorate of Distribution and Transportation (AMCDT) was expanded due to the implementation of Phase I of the Headquarters, AMC, reorganization plan, which involved a regrouping of elements under the Deputy concept. On 2 June 1969, the Director of AMCDT began reporting to the Deputy Commanding General for Logistics Support (AMCDLS). At the same time, the Troop Support Division, the Worldwide Logistics Management Office, and the Special Assistant for Post Hostilities Operations of the Directorate of Materiel Requirements (AMCMR) were relocated as organizational elements and reported to the Director of AMCDT. Also, the Cataloging and Supply Data Management Division was relocated from the Logistics Data Management Office to AMCDT.

The transfer of these offices added several new functions to this directorate's mission and brought such matters as T-Day Planning, the OASIS (Ownership and Accountability of Selected Secondary Items Stocked in Oversea Theater Depots) program, and other projects under its control. When the new assignments were added to the directorate's basic mission of directing and controlling AMC stock control, requisition processing, storage, packaging, containerization, and transportation responsibilities

in support of the Army, it amounted to a major contribution toward accomplishing the mission of the AMCDLS.

Program Office

Revisions of Regulations

AR 740-6, Depot Operations Cost and Performance Report, which superseded AR 780-63 dated 18 December 1963 provided for the preparation of a quarterly report in much greater detail than had been previously required. The new report was placed in effect for the third quarter of Fiscal Year 1969 for CONUS (continental United States) installations. Oversea commands were scheduled to adopt the new report in Fiscal Year 1970. Because of technical difficulties involved in collecting data for the report, some slippage in instituting the report was expected.

AMCR 740-16, Depot Operations Program Workload Forecasting System, which described the policies and procedures, was issued on 12 December 1968. It prescribed policies and procedures to be used by all National Inventory Control Points (NICP) and Army Class Manager Activities (ACMA) in preparing depot workload forecast data for Army-owned and -managed stocks in CONUS Army depots and activities. It contained information on maintenance as well as preservation and packaging workloads. The regulation became effective with forecasts to support the Fiscal Year 1971 Command Budget Estimate due in May 1969.

AMCDT-148, Cost and Performance Report (AMCR 11-35), which was instituted during Fiscal Year 1969, covered workload, cost, and manpower on a quarterly basis for supply management operations.

Reports for the first three quarters of Fiscal Year 1969 were utilized to justify manpower and dollar requirements reflected in the AMC Fiscal Year 1969 budget execution review and the Fiscal Year*1970 AMC operating budget. Selected reporting commands were visited to provide on-site guidance in the preparation of the reports.

Manpower Spaces

Requests for additional manpower to fill critical vacancies were futile during Fiscal Year 1969, as budgetary restrictions necessitated very stringent control on both spaces and dollars. The area most affected was supply depot operations which were reduced by a total of 4,000 full-time permanent employees in December 1968. Although this loss was partially counterbalanced by use of 2,000 temporary part-time employees, the loss of basic skills and available manhours had a severe impact. Effort was reduced in the lower priorities of work established in the AMCDT 5-Year Program Guidance activities, such as training, rewarehousing, and the manufacture of boxes. In addition, supply performance was reduced, resulting in shipping delays. To offset the reduced working hours, overtime increased steadily and although high priority items were handled satisfactorily, other activities were accomplished only as manpower and funds became available. As a result of this squeeze, it was expected that Fiscal Year 1969 cost-reduction goals would be met, but it was doubtful if the 3-year goal for Fiscal Year 1969 through Fiscal Year 1971 could be met.

T-Day Planning

A representative from this directorate was assigned as a member of the T-Day planning working group. During the second quarter of Fiscal Year 1969, the overall T-Day planning directive was reviewed and draft annexes were proposed for the AMC directive. After several conferences, the AMC T-Day Plan was published on 2 June 1969 and the AMCDT representative from the Programs Office was relieved of the assignment. Subsequently, the Office of the Special Assistant for Post Hostilities Logistic Operations was transferred to AMCDT as the Office of the Coordinator for Post Hostilities Logistic Operations. In addition to other duties, it assumed responsibility for coordinating T-Day Planning matters.

MILSTEP

A revision of the MILSTEP (Military Supply and Transportation Evaluation Procedures) guidance to NICP's was made to provide more specific and updated instructions and a revised flow chart. This revision was based on actions taken after the original draft was prepared by the AMC Logistics Systems Support Center at Letterkenny Army Depot.

Phases I and II of the program instituting the revised guidance were accomplished during the period 28 April-15 July 1969. All NICP's reported on schedule except the U.S. Army Tank-Automotive Command (TACOM), which had a 90 percent rate, due to several minor problems. Results from Phase III testing were expected at the end of July 1969 and the completion of Phase IV (Report Preparation and Analysis) was anticipated during August.

With the phase out of the AMCDT-115 CONUS Supply Performance Report and the phase-in of MILSTEP reporting on 1 July 1969, the Command Management Review and Analysis (CAMERA) system was established. This system was a set of key management indicators that were developed jointly by the AMC Comptroller and Headquarters staff elements and reflected the status of the major missions, programs, activities, and resources of AMC. Supply performance data was prepared monthly on microfilm for use with a micro-reader and printer.

Supply in Review

Supply in review was expanded, revised, and updated during Fiscal Year 1969. Under revised distribution lists, 235 customers worldwide received approximately 675 copies each month. The revised publication placed heavy emphasis on MILSTEP performance and depot operations as well as giving relevant data on the Army Stock Fund, PEMA (procurement of equipment and missiles, Army), and other important matters.

Stock Management and Control Division

Elimination of Non-Mission/ Marginal Storage Sites

An investigation by an ad hoc study group revealed that many storage sites at depots were only marginally active. From a total of 37 different sites, action was taken to eliminate 32 of them immediately. In addition, the directorate established a monthly review of storage location data to begin during Fiscal

Year 1970. The objective, as set up, intended to facilitate elimination by the NICP's of stocks from non-mission sites and to keep such storage to a minimum.

Transfer of Accountability of Ammunition
from APSA to Appropriate Owning Services

This project, which had been a concern for the Joint AMC/NMC/AFLC/AFSC commanders for 3 years was brought substantially closer to completion during Fiscal Year 1969. Detailed transfer instructions were completed on 7 February 1969 and were furnished to applicable depots for use in complying with the transfer schedules. Subsequently, the Joint Interservice Logistic Support Agreement for Ammunition was signed by all the services and after programing and debugging were completed the transfer process was begun.

The first depots to transfer accountability were the pilot run depots of Anniston and Seneca, in March 1969. Transfers were scheduled for accomplishment on an increment and geographical basis in order to avoid the possibility of tying up all ammunition assets at any time. The first increment consisted of Sierra, Lexington-Blue Grass, Navajo, Red River, and Fort Wingate depots transferred during April and May 1969. Letterkenny, Savannah, and Pueblo depots and Rocky Mountain Arsenal followed in May and June 1969 and the third increment consisted of Tooele and Umatilla Depots and Pine Bluff Arsenal transferred during June and July 1969. All transfers were thus completed by the end of Fiscal Year 1969.

U.S. Marine Corps Entrance
into Closed Loop Program

During this year, an interservice support agreement was executed between the Army Materiel Command and the Marine Corps concerning the Army Combat Vehicle Closed Loop Support Program for Vietnam. Initially, two pieces of equipment, the M107 175mm gun and the 8-inch howitzer M11D were programed. The Marine Corps vehicles were to be handled in the closed loop support programs in the same manner as Army vehicles with the Marine Corps reimbursing the Army for services and supplies.

Transfer of Accountability
for Basic Issue Items

On 1 July 1968, the Basic Issue Items (BII's) were transferred from individual depot accountability to the accountability of the applicable NICP. This action had been delayed since 31 December 1965. In accordance with AMCC 735-1, APSA (U.S. Army Ammunition Procurement and Supply Agency), MICOM (U.S. Army Missile Command), TACOM, and WECOM (U.S. Army Weapons Command) accomplished the transfer on the scheduled 1 July 1968 date, but ECOM (U.S. Army Electronics Command) requested a 60-day extension due to reprogramming difficulties and later asked for an additional 6-month extension to train personnel. By 28 February 1969 the depots had transferred the accountability of BII to ECOM, and as of 1 March all accountability had been assumed by the AMC NICP's, thus fulfilling an Army Supply and Maintenance System (TASAMS) requirement. Since AVSCOM (U.S. Army Aviation Systems Command) and MECOM (U.S.

Army Mobility Equipment Command) already maintained BII accountability, they were not involved in this transfer action.

National ADP Programs for
Army Logistics Management

The completion of Phase I of the National ADP Programs for Army Logistics Management (NAPALM) plan which involved equipment selection and justification was completed during Fiscal Year 1969 and installation was expected to be completed on schedule during 1970. The design, programing, and installation of initial hardware applications (Phase II) were scheduled to result in a pilot operation on 1 July 1970.

Phase II operations involved several important tasks, among which were the presentation of a prospectus by the Automated Logistics Management Systems Agency (ALMSA) to effect an overall plan, development of computer programs and systems specifications, training materiel and schedules, and the compilation of required documentation prior to a systems test. The end of the fiscal year saw all prospectuses within the stock control area presented and accepted—some with qualifications. Four of a total of 39 subsystem specifications were to be finalized in the first quarter of Fiscal Year 1970 and the remaining 35 were to be completed by 1 December 1969. In addition to the seven draft copies of the subsystem specifications already completed, 18 more were to be available in the first quarter of Fiscal Year 1970.

Red Ball Expanded

The Red Ball Express system to expedite delivery of repair parts to Vietnam continued with approximately 4,000 requisitions being received by CONUS supply sources each week. The Red Ball expanded special supply system was implemented to complement the Red Ball Express and provided authority for Vietnam for requisition repair parts in anticipation of deadline requirements.

Since the inception of the Red Ball Express system, 743,647 requisitions had been received by CONUS supply sources and 56,553 short tons of materiel had been shipped by air. The Red Ball expanded program accounted for 59,198 of these requisitions.

Support of Thailand Projects

After the decision was made in 1968 to equip, train, and deploy the Royal Thailand Army Volunteer Force (RTAVF) to the Republic of Vietnam (RVN), the Department of the Army (DA) requested that AMC monitor the status of supply for the project. As a result, AMC customer assistance representatives were provided, on a TDY basis, to Thailand during the period December 1967-July 1968. These Customer Assistance Office (CAO) personnel provided assistance in supply actions and provided time liaison with the AMC activities concerned.

During Fiscal Year 1969, the RTAVF deployed to RVN, the first half of the division in July 1968 and the second half in February 1969. The third increment replacement force was trained and satisfactorily equipped and deployed in July 1969. At the

end of the year, a fourth increment replacement force was in the process of being trained and equipped.

Redistribution of PACOM Long Stocks

To avoid the massive surpluses of materiel like those at the end of World War II and the Korean conflict, DOD established a Project for Utilization and Redistribution of Materiel (PURM) with the express purpose of making maximum use of this materiel. The Project for Utilization and Redistribution Agency (PURA) had this responsibility and worked under the control of the 2d Logistical Command. Long stocks or excesses were reported or shipped to Okinawa which in turn redistributed the items to other PACOM (Pacific Command) services and commands through PURA. The items were allocated on the basis of requirements while the residue was reported and returned or disposed of as directed by the item manager.

Storage Division

SEA Shipments

The first half of Fiscal Year 1969 proved to be largely troublefree with regard to Southeast Asia (SEA) shipments, but during the third quarter several problems continued to require attention. Most of these difficulties concerned legible and durable item identification markings, arranging tires for sea van shipments, and reducing multipack containers. Substantial effort was devoted to the resolution of these problems and to

another problem in the 1st Logistical Command regarding the standardized packing of sets, kits, and assemblies. At the end of the year, substantial progress seemed to be indicated in all of these areas.

Retrograde Cargo from SEA

Continuing surveillance was maintained on the packaging, packing, and marking of retrograde cargo from SEA in order to avoid receiving inadequately prepared returns which created problems for the depots. Despite this effort and appeals to USARPAC, the general condition of retrograde continued to be inadequate. Toward the end of the year, the volume began to increase, necessitating the diversion of available resources from lower priority projects to process retrograde materiel. Unfortunately, the solution to this increasing problem did not seem apparent at the end of the year.

Preparation of Tires for Shipment to SEA

The 1st Logistical Command reported that CONUS shipments of pneumatic tires loose in sea vans was creating a problem in depot receiving and storage operations. Immediate relief was provided by requiring that tires of specified sizes be crated in accordance with the AMCR's for shipment in or outside of sea vans. A test of a new method for palletizing tires shipped in sea vans to Vietnam was completed and evaluated with the cooperation of the 1st Logistical Command and judged successful. The new method resulted in substantial reductions in unitization cost, improved

handling, more effective utilization of cargo space in MILVANS and sea vans, and in use of unit loads which were readily adaptable to storage and issue needs of Vietnam depots.

Joint Interservice Support
Agreement for Ammunition

On 11 February 1969, this agreement was officially approved by all the services. It defined policies and established procedures pertinent to the CONUS logistical support that might be provided for ammunition by one military service to another. Initial action by the Army, under the agreement, called for the transfer of accountability of munitions owned by another service with control through the Army Inventory Control Point. Total implementation of the agreement was to become effective at the beginning of Fiscal Year 1970.

Depot Storage Modernization

The Depot Storage Modernization Program's progress rose sharply during Fiscal Year 1969. This was due to the receipt of OMA (operations and maintenance, Army) funds, which permitted the letting of contracts for installation of major handling systems at Pueblo, Red River, and Tooele Army Depots. During the year, constant reviews of proposed procedures to modernize and mechanize depot storage operations were undertaken and as advancements in the state-of-the-art became evident and were proven feasible and profitable for AMC use, systems designs were updated accordingly.

Transportation Division

Helicopter External Lift Sling Problems

The use of "jury rig" methods in using slings for external lifting of equipment caused serious operational problems in RVN during 1969. To meet this problem, AMC initiated an essential air transportability program. As a result, considerable testing was accomplished and a technical manual was published and distributed to operational units in Vietnam.

The responsibility to develop a total external helicopter lift system was delegated to AVSCOM, which developed a plan for the system and submitted it to AMC headquarters for approval. Tests of additional helicopter external lift equipment were undertaken and the test results and procedures were to be published for guidance in the field.

Repair Parts Support for Aircraft in Training Base

Due to a delay in providing necessary aircraft repair parts, on 3 January 1969, AVSCOM reported a serious disruption in the pilot training programs at Ft. Rucker, Alabama, and Hunter Army Airfield, Georgia. A completed study indicated that the average intransit time for not operationally ready supply items was 14 days and this was quite a costly delay since the daily non-operational cost of the CH47's at Ft. Rucker proved to be \$31,000.

On 13 January 1969, a Closed Loop truck test service was established to expedite delivery of aircraft repair parts to

training bases and prompt and orderly return of unserviceable items to maintenance channels. This service proved successful in reducing transit time for repair parts to an average of 2 1/2 days. It provided a firmer control of reparable items in maintenance channels to permit earlier return of these items to supply channels. To evaluate the overall test program, and to determine if any further corrective action was required, a conference was scheduled for 25-26 September 1969 at Ft. Rucker.

System for Consolidating Air Shipments

To cut transportation costs, an air consolidation system at Harrisburg, Pennsylvania, began testing on 3 February 1969 with completion scheduled for 31 October 1969. The system provided for pickup of all priority air cargo shipments from Letterkenny, Mechanicsburg, and New Cumberland, Pennsylvania, and their subsequent consolidation and shipment to Travis Air Force Base, California. Several advantages, such as single billing of cargo, faster service to Travis AFB and better control of cargo at the destination, were noted even in the first few months of operation. There were prospects of expanding the system to meet requirements at other shipment points. Although the test had several months more to run, at the end of the year, the prognosis for easier and more economical shipment seemed assured.

Containerization Facility

A consolidation and containerization facility was activated at Red River Army Depot on 15 December 1968. The new facility

was to consolidate and containerize outbound export cargo received from Atlanta, Anniston, Granite City, Lexington-Blue Grass, and Red River Army depots. When the containers were loaded with Army cargo, they were to be released for shipment to SEA destinations.

Routing of Military Cargo

In accordance with an OASD (Office, Assistant Secretary of Defense) memorandum of 27 March 1969, MTMTS (Military Traffic Management and Terminal Service) began to route military cargo through the Great Lakes, on a test basis, during the shipping season. All cost favorable cargo suitable for inclusion in the test was to be routed through the Great Lakes and a minimum utilization goal of 7,300 measurement tons per sailing was established. If cost favorable cargo could not reach this weight, the balance of the load was to be routed through the Great Lakes to meet the requirement. By the end of the year, this program was progressing satisfactorily although AMC did incur some excess inland transportation costs on some shipments through Milwaukee and Toledo.

Demurrage Charges at Ordnance Plants

Rather than producing and storing excessive quantities of many types of ammunition so as to have them on hand to meet estimated demands, Army ammunition plants endeavored to control the production to meet the demand as it became known. However, since the ammunition usage rate in Vietnam did not permit a uniform production rate and flow of ammunition of all types,

continuous adjustment on input and output was required. This adjustment was aggravated by the lack of suitable rail cars and the necessary limitations imposed by the port requirements for management.

Demurrage charges decreased markedly from their 1967 level. This decrease in demurrage was due to more stabilized requirements from RVN, the use of trucks because of the unavailability of suitable rail cars, and the improved management and quality control of the contractor-operated plants. The likelihood of a bad lot of ammunition decreased to the point that in most cases it was feasible to begin the movement to the port without awaiting test results. In addition, considerable savings resulted from the loading of carrier equipment directly from the production line and the use of carrier equipment to feed the production line at Army ammunition plants.

Catalog and Supply Data Management

Approved Item Name Reclassification

After plans for this program were completed and approved on 24 March 1969, representatives of the military services and the Defense Supply Agency (DSA) were designated as members of the Joint Implementing Group. By 2 June 1969, this group had developed a reclassification and item management coding schedule, item name processing schedule, a schedule of significant events, and a reporting format. The program cost was anticipated at \$3 million and would result in the reclassification of 120,000 Army-used or

-managed items, and the item management coding of about 72,000 items which might be lost to DSA. At the end of the year, action was still pending on initial implementation of the program, with the estimates of workload in progress.

Microfilm

During Fiscal Year 1969, the Army Master Data File Reader Microfilm System (ARMS) experienced dramatic acceptance and expansion. The number of readers in use was expanded from 523 to 1,278 and microfilmed files employed were expanded from 1,115 to 4,145. At the beginning of this period, distribution of updated replacement files was limited to a quarterly cycle to the DSU/GSU level. The distribution also included monthly updated replacements to CONUS depots and NICP's and overseas ICC's (inventory control centers). Files were also supplied, at no charge when they obtained microfilm readers, to Military Assistance Advisory Groups and missions as well as to friendly foreign governments.

The program had been adopted by all participants as representing a major improvement of the Army logistical system. Additional segments of the Army Master Data File were converted to microfilm and the Master Cross Reference List was distributed to ARMS customers. ARMS itself was under study at the end of the year so that an appropriate regulation could be formulated exclusively covering the program.

Implementating of the DOD
Item Entry Control Program

This program, which had been suspended for approximately 2 years, due to OSD disapproval of the necessary personnel spaces and funds, got under way in June 1968 when 163 personnel spaces were authorized to Army DTRA's (Defense Technical Review Agencies). Although recruiting began immediately, staffing was not completed until late January 1969 and, consequently, results at the end of the year were minimal although all DTRA's were operational and the situation was steadily improving.

Troop Support Division

New Responsibilities

Organizational changes within AMC on 1 July 1968 led to the assumption of several new duties by the Troop Support Division. The responsibility for the wholesale interservice support agreement, which involved the coordination of all support requests for centrally managed or controlled materiel, was assigned to the division. In addition, the division monitored over AMC participation in wholesale interservice support, was the source for AMC policy on this subject, and was responsible for the negotiation of DA and AMC Headquarters level agreements.

After the deprojectization of the AMC Project Manager's Office for POL (petroleum, oils and lubricants), the Troop Support Division took over the primary mission and functions as well as the personnel assigned to that office. In a related development,

the Army Petroleum Center was designated as an NICP for solid fuels, especially coal, which had previously been handled by the Office, Chief of Engineers.

Decapitalization of Combat Individual Meals

In 1967, the ASD (I&L) had directed DSA to decapitalize prepositioned war reserve stocks of combat individual meals to the Army. Accordingly, an agreement was reached to decapitalize 17.9 million meals by direct vendor delivery beginning in October 1968. After a preliminary delay stemming from an unanticipated increase in SEA requirements, first deliveries were made to Army-leased refrigerated storage in December 1968 and decapitalization was completed in June 1969. This fulfilled an AMC objective since Army-owned packaged combat rations were then strategically located at 20 storage sites throughout CONUS to meet contingency requirements.

Forward Area Refueling Equipment

Increased air mobile operations in Vietnam produced a requirement for high capacity reliable and lightweight air transportable refueling equipment. In response to this requirement the Forward Area Refueling Equipment (FARE) system was developed and made available to U.S. Army, Vietnam (USARV) during the first quarter of Fiscal Year 1969.

The FARE system was organized on a modular basis, permitting the user to arrange the individual components to meet specific

operational requirements. Ninety-nine FARE systems had been sent to USARV for testing by December 1968. The tests revealed some necessary steps for improving maintenance. This led to a vast improvement over the existing standard refueling system and it was scheduled for type classification during Fiscal Year 1970.

Supply of Sandbags to SEA

Demands for sandbags for SEA had steadily increased each year since 1965. Although the Army initially developed a specification for a polypropylene sandbag and procured large quantities of that bag, acrylic bags were found to be much more durable especially when exposed to direct sunlight, which rapidly deteriorated the polypropylene bags. Accordingly, the Army requested DSA to procure, to the maximum practical extent, acrylic sandbags. After deliveries began during the first quarter of Fiscal Year 1970, DSA restricted all further procurements of acrylic bags.

This change had an almost immediate effect, as the monthly demand fell from 28 million to 20 million by the end of calendar year 1968. In the meantime, contractors completed delivery of residual quantities of polypropylene sandbags remaining on contract. DSA advised that all deliveries, after May 1969, to Vietnam for the Army would consist only of acrylic sandbags.

Expedited Action for U.S. and ARVN Personnel

During Fiscal Year 1969, the Army Vice Chief of Staff directed

that action be taken to by-pass the roadblocks encountered in getting specialized clothing and equipment to SEA. The Troop Support Division was delegated the responsibility for insuring that these items were procured and shipped to personnel in Vietnam. During the early part of Calendar Year 1969, action by the Troop Support Division led to the swift fulfillment of several requirements, which included a boot with more traction, a more comfortable pack, and sleeping equipment which required less effort and time to set up. To improve health conditions, mosquito-protective uniforms and load-carrying items that were much less abrasive to the skin were shipped to the personnel. This policy of furnishing the best and most up-to-date clothing and equipment also contributed to better troop morale.

Aircrewman's Protective Helmet, SPH-4

Under limited production type classification authority, operational quantities of the SPH-4, aircrewman's protective helmet, were procured to meet requirements in SEA. This helmet represented a significant improvement over the Standard A AFH-1 in that it was lighter in weight and offered greatly improved sound attenuation, improved crash protection, and better retention characteristics.

Variable Type Body Armor

Operational quantities of variable type body armor were procured and airlifted to Vietnam. The armor consisted of a fragmentation protective vest that ceramic plates could be

inserted. With the plates inserted, the vest afforded protection from .30 caliber ball ammunition. The first procurement of this body armor was expected to provide complete initial issue and 1 year's replacement.

Rayon Tan (RT) Shade 445 Uniform

To provide calendar year 1969 requirements for drill sergeants, limited procurement was made of RT 445 uniforms. This action resulted from a highly favorable response from a test group of drill sergeants who wear-tested 500 sets of this uniform during the summer of 1968. The wash and wear durable press characteristics and the superior appearance after laundering were the prime factors in the approval of this uniform for summer wear by drill sergeants. The RT 445 uniform was made an item of optional purchase and wear by all Army military personnel as a replacement for the Army tan uniform.

Other Developments

To insure constant surveillance over demand data, a new Defense Automatic Addressing System (DAAS) demand data reporting system was initiated. At the end of the year programing was still underway, but the report, when fully implemented, was expected to reveal areas requiring corrective action thereby resulting in considerable long-range benefits.

To insure the complete development of U.S. Army Force Development Plans and U.S. Army Force Planning Guides, the division participated in the DA war games and studies by providing

POL logistical expertise. Petroleum data input, continual analyses and refinements during the gaming process, and final written analyses and justification were completed for Army Force Development Plans for Europe, Southeast Asia, Korea, Ethiopia, and for the Army Force Planning Guide for SEA.

A feasibility study on the commercial use of the U.S. Army Haines-Fairbanks Pipeline System in Alaska determined that it was feasible to move commercial products through the pipeline. The study also established conditions of use and safeguards necessary to insure no degradation of petroleum supply to the military. The Commander in Chief, Alaskan Command, and the Secretary of the Army had concurred in the conclusions and recommendations of the study by April 1969. The final decision by the ASD (I&L) was pending at the end of the year.

Finally, after the Deputy Chief of Staff for Logistics (DCSLOG) advised that staff visits to SEA had established a need to restrict the types, sizes, and grades of items used by the Army in the field, AMC developed a required control program to accomplish this objective, together with a time-phased plan of implementation. By the end of the year, the plan had been implemented. Significant results were expected during Fiscal Year 1970.

Worldwide Logistics Management Office

Project OASIS

As with any new system, several problems arose during the conduct of the OASIS system. The most significant problems during Fiscal Year 1969 concerned credits and billing, control of back orders and zero balances, reduction of intransit assets, reduction of invalid documentation, and implementation of the Central Asset Visibility and Management Program (CAVAMP) in Vietnam.

On 25 February 1969, U.S. Army, Europe (USAREUR) reported fiscal problems in credits and billing that were due to OASIS. To resolve these problems a meeting was held at AMC Headquarters in March 1969 with representatives from USAMATCOMEUR and NICP's to discuss the problems and initiate corrective actions. Since the USAREUR representative had brought his documentation of billing discrepancies to the meeting, the NICP's agreed to review all claims. The action taken resulted in the application of \$6.6 million credit to USAREUR. As a result of the review, all billing actions were accomplished and the NICP and USAREUR records were reconciled.

The number of backorders and zero balances was inappropriately high at the beginning of the OASIS program, and was therefore inconsistent with the OASIS objective of improved supply support. The Worldwide Logistics Management Office (WLMO) therefore attempted to exercise extra close control over this situation

and the intensive management produced tangible results. The dollar value of backorders was reduced from \$137 million in July 1968 to \$87 million in May 1969. During the same period, while the number of requisitions remained fairly constant, the average age of the backorders fell from 156 days to 101 days, indicating that older requisitions of equal priority were being filled first and that requisitions for the costly critical items were being given careful attention. Continued emphasis on zero balances brought the worldwide zero balance rate down to 1 percent. This meant that there were stocks available on 99 percent of all OASIS items somewhere in the world. Although full requirements of the 99 percent were not on hand in every case, high priority requisitions were generally filled from available stocks, even though many of the items were hardcore critical items.

The problems of overdue intransit assets and invalid documentation were linked very closely as OASIS program deficiencies. A large number of OASIS transactions were found to be outstanding, lost, or received with a degree of error. An investigation of the problem showed thousands of documents involved which resulted in invalid records in CONUS and overseas. This situation contributed materially to intransit delays, especially in USAREUR, where document errors seemed to be most prevalent. Toward the end of the year a monthly adjunct on documentation was added to the OASIS Monthly Performance Report. The reporting was established at 4 NICP's during 1969 and the remainder of the NICP's were to start reporting in Fiscal Year 1970*. Significant improvement was

expected since the problem areas had been identified and reporting begun.

CAVAMP

Preparing for the implementation of an OASIS-like program in USARV became a major problem area during Fiscal Year 1969. What form asset accounting would take stood out as a significant difficulty. After it was decided that a system, based upon visibility rather than AMC ownership, would be developed for Vietnam, CAVAMP was established and implemented in June 1969. A management team was to leave for Vietnam in July 1969 to supervise the system and insure solutions of various problems.

At the end of the year, all benefits and savings obtained from OASIS were achieved without any loss or impairment of basic supply support. Despite acknowledged procedural difficulties in overseas commands, OASIS was attaining the desired objectives.

Post Hostilities Logistic Operations

Recent History

In September 1968, AMC began preparations for a post hostilities environment. The Chief of the Operational Readiness Office (OPRED) organized a T-Day working group comprised of representatives of the various directorates. The group began planning for the phasedown of forces in SEA and in November 1968, the Deputy Chief of OPRED became the T-Day Project Officer and the working group commenced a full-time planning function.

To facilitate the increasingly important function of T-Day planning and because of the complex coordination required with DA, CONARC, DSA, and GSA, the Commanding General, AMC, established the position of Special Assistant for Post Hostilities Logistics Operations. BG Theodore Antonelli was appointed as the Special Assistant. Less than 6 months later, this position was eliminated, however, in concert with the major reorganization of June 1969. The office was redesignated the Post Hostilities Logistic Operations Office and was transferred to AMCDT.

Although the position of Special Assistant was of short duration, the period December 1968-May 1969 was fast-paced indeed. The publication of the draft AMC T-Day Plan on 15 December 1968 revealed many problems which required resolution by DA, CINCUSARPAC (Commander in Chief, U.S. Army, Pacific), CONARC, and AMC. Such areas as requirements, asset availability, maintenance standards and procedures, force structure after termination of hostilities, storage sites, and other areas posed numerous problems. Conferences were held both in CONUS and in the Pacific area and studies were conducted by Headquarters, AMC staff elements and the various commodity commands to resolve problems and develop procedures to be used during roll-up. With most of the problems resolved or under study, work began on the final T-Day Plan. The final plan was reviewed and coordinated by all Headquarters, AMC directorates and published on 2 June 1969. The Director of AMCDT was also Coordinator for Post Hostilities Logistic Operations and continued to monitor and

give direction, as appropriate, to all T-Day plans and action for implementation. On 8 June 1969, the President announced his decision to withdraw 25,000 men from Vietnam. The redeployment, titled KEYSTONE EAGLE, necessitated the preparation of implementing instructions modifying the AMC T-Day Plan.

CHAPTER VIII
(U) MAINTENANCE

Support Division

Army Spectrometric Oil Analysis

During Fiscal Year 1969, additional facilities for the Spectrometric Oil Analysis Program were established at Fort Walters, Texas, and Fort Stewart, Georgia, as well as two additional satellite facilities in the Republic of Vietnam (RVN). Due to the inclusive results of the ground equipment feasibility tests, they were to be extended for 1 year. The success of this program depended largely upon the overall success of the Department of Defense (DOD) program, which utilized the assets of all three services to better serve the field units. This DOD program was scheduled for full activation in Fiscal Year 1970, beginning with the procurement of a DOD standard instrument.

Support for Tests

Reports from the U.S. Army Test and Evaluation Command (TECOM) indicated that testing schedules were being delayed because of the late arrival on the test site of maintenance test packages or because maintenance test packages were incomplete. To remedy this situation the U.S. Army Maintenance Board (USAMB) was assigned a project to identify the requirements for providing maintenance support for materiel tests. As a result of a USAMB staff study, all commodity commanders and project managers were

reminded of the requirement of providing maintenance support for tests conducted during the development of new equipment for adoption by the Army. Improving maintenance test package support was a continuing project.

Multiservice Codes

On 18 March 1969, the Joint AMC/NMC/AFLC/AFSC (U.S. Army Materiel Command/Naval Materiel Command/Air Force Logistics Command/Air Force Systems Command) Commanders approved the chartering of a panel to develop, on a priority basis, a common system of source, maintenance, and recoverability codes for multiservice application. The Support Division was the AMC focal point for this panel.

After meeting, the panel developed a charter and a study plan which was to be submitted, in July 1969, to the joint commanders for approval. The proposed project was scheduled for completion in January 1971.

Proposed Army Equipment Record Procedures

Through an 18-month effort of AMC, USAMB, AMC/LDC (Logistics Data Center), and commodity command personnel, certain TAERS (The Army Integrated Equipment Record Maintenance Management System) maintenance data reporting forms were eliminated and/or redesigned to prepare for acceptance of the "credit card" concept. The proposal included elimination of materiel readiness reporting from

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TAERS due to the inclusion of asset reporting in Army regulations.

This proposal was not accepted by the Department of the Army (DA) during Fiscal Year 1969 however, although many points met with a favorable response, especially the redesigned forms intended to minimize data reduction errors. However, DA indicated that no form changes would be considered until after 1 January 1970.

Embossed Plastic "Credit Card" Plates

A recommendation was made to DA that an embossed "credit card" system be established as a means of eliminating an estimated 65 percent of errors on TAERS data submitted to the worldwide data bank at LDC. There were 13 basic data elements on the three TAERS forms used in reporting maintenance information from the field and manual transcription key punching and erroneous transcription caused a 65 percent error rate on data submitted. It was anticipated that the use of a "credit card" system would eliminate a majority of these errors and the project was taken under consideration by DA.

Processing of TAERS Data for National Maintenance Points

During April 1969, a plan was provided by the President of the USAMB for a two-phased plan for processing of TAERS data for National Maintenance Points (NMP's). The first phase was to provide statistical data by reports and summaries using existing

¹
AR 220-1, 20 Feb 1967, subj: Unit Readiness and AR 711-5, 1 June 1961, subj: Department of Defense Priorities and Allocations Manual.

programs and the second phase envisioned publishing new reports and summaries to utilize 3d generation automatic data processing equipment (ADPE).

Phase I was currently in operation at all commodity commands except the U.S. Army Aviation Systems Command (AVSCOM) and the U.S. Army Missile Command (MICOM), which had inherent automatic data processing (ADP) capability. Phase II was in progress and a request was submitted to the Directorate of Management Information Systems (AMCMS) for early installation of 3d generation ADP equipment at LDC.

Project Maintenance Support Positive

As a result of a charge by DA that provisioning on the M656 Truck was unrealistic, a joint review was made of the provisioning for this vehicle by the U.S. Army Tank-Automotive Command (TACOM), HQ, AMC, and DA (DCSLOG/MED) representatives from 20-23 May 1969. The results of this review showed that TACOM had complied with current provisioning policies and techniques but that these techniques were in need of review and revision. Accordingly, DCSLOG/MED directed the establishment of the Maintenance Support Positive Project.

The objective of this program was to investigate maintenance policies and criteria to insure that maintenance tasks were allocated for the most suitable level of maintenance and that organizational parts authorizations were limited to the minimum number of line items and the lowest practical quantities of each

item consistent with the unit mission. It was intended to identify and eliminate the causes of inadequacies of prescribed load lists (PLL) and authorized stockage list (ASL) authorizations. To develop a time-phased plan to accomplish these objectives a briefing was scheduled at TACOM for 30 July-1 August 1969.

Equipment Publications Program

Some progress was made in Fiscal Year 1969 toward the review and revision of Repair Parts and Special Tools Lists-Technical Manuals (RPSTL-TM), as prescribed in AR 700-18, and approximately one-third of the pages requiring revision were converted. A plan to complete the entire revision by Fiscal Year 1972 was approved by the Commanding General, AMC, in May 1969. Subsequently a letter was dispatched to all AMC commodity commands delineating the high priority effort required to accomplish this goal. It was anticipated that the Fiscal Year 1970 and Fiscal Year 1971 programs could be carried out with available funds, while an additional \$2.7 million would be requested for completion of the project.

During Fiscal Year 1969, the Army program to consolidate specifications and contractual documents for the preparation of technicals manuals (TM's) continued to progress satisfactorily as a total of 11 of 25 specifications were completed. The completion of these 11 specifications reduced the former technical service documents from 50 to 21.

Missiles and Electronics Division

Introduction of Computerized Electronic Test and Analysis Equipment

This system resulted from a marriage of studies of test equipment automation by the U.S. Army Electronics Command (ECOM) and MICOM. After prototype automatic test equipment for depot operation was developed and hardened into the Depot Installed Maintenance Automatic Test Equipment (DIMATE) concept, it was installed at both the Tobyhanna and Sacramento Army Depots. The use of this system proved the feasibility of computer controlled automatic test equipment to support depots and showed that manpower savings as high as ten to one could be realized.

Other Projects

Project Band Aid, which was initiated in 1967 to quickly upgrade the operational capability of the Missile Monitor System in Europe, continued to support this activity in Fiscal Year 1969 by providing on-site maintenance by a specialized team. This was made necessary by the lack of in-country general support unit (GSU) support and the float assets required.

To remedy a lack of self sufficient GSU maintenance facilities in RVN, a system was developed whereby continental United States (CONUS) depots were employed as RVN GSU shops with all items being airlifted to and from CONUS depots. This system, first begun in 1965, continued to function satisfactorily in 1969.

The unique combat conditions in RVN placed specialized urgent requirements for customized communications-electronics (C-E) equipment on AMC. The C-E depots with their broad experience in industrial operations designed and fabricated these specialized configurations to meet the required delivery dates. For the most part, these requirements were fulfilled by Quick Reaction Projects.

Vehicles and Equipment Division

Allen UTI Model 770-PDS Program- able Diagnostic System (formerly model 1280 PD)

A field test, which was concluded in August 1968, led to the procurement of two additional sets. One was delivered to TACOM in June 1969. Thorough testing at TACOM revealed some shortfalls in performance, but the machine was deemed capable of being upgraded by increased engineering effort. Moreover, procurement and in-use test and evaluation of a number of sets in actual depot use could provide much useful information on how to use and maintain sophisticated diagnostic equipment. At the end of the year, contracts were being negotiated for the purchase of approximately 30 sets to be distributed to AMC depots for evaluation and use in AMC depot environment. First deliveries were anticipated about 9 months after the end of this fiscal year.

Automatic Checkout System for Combat Vehicle Engine and Transmissions

This system, which was formerly designated as "Depot Maids", was scheduled for upgrading at Letterkenny Army Depot, with work scheduled to begin in October 1969. Although DA had questioned

the wisdom of expending funds on the Letterkenny installation instead of another depot. TACOM maintained that since extensive installation had already occurred at this depot, it was advisable to continue refinement of the system there.

Accordingly, Hamilton Standard Division of United Aircraft was given the contract for the upgrading. The project was scheduled in two phases and it was expected that 13 bays capable of testing engines and transmissions would be constructed. The results obtained from this pilot project could then be applied to operations at other depots.

GMC 44 Passenger Bus

The excessive deadline rate with this vehicle continued during 1969 and users were funding their own repairs from operation and maintenance, Army (OMA) funds, but the U.S. Continental Army Command (CONARC) demanded that the power packs be supplied free from procurement of equipment and missile, Army (PEMA) funds.

Two alternative power packs were being considered at the end of the year. The Cummins 185 Diesel Engine/Lipe Clutch/Spicer Manual Transmission was installed in approximately 1,000 vehicles. The power pack had a 100,000 mile warranty and was considered satisfactory. The alternate solution for gasoline engine applications was a GMC 401 engine and Allison automatic transmission. Nine of these transmissions had been installed and Hawaii was authorized by AMC to convert all 27 of their buses.

Recapping Tires for SEA

A situation had developed in Southeast Asia (SEA) whereby the major portion of tire procurement was met from new stock and little attention was given to recapping usable tire casings. This was in technical violation of AR 750-2600-2, which prescribed recapping wherever possible. As a result, in January 1969, DA asked the U.S. Army, Pacific (USARPAC) to exploit the possibility of recapping 300,000 tires per year for SEA. AMC was requested to provide technical and supply support to USARPAC.

After studies and reviews were made of the situation, a survey team was sent to the Far East to determine the availability of commercial recapping facilities in Taiwan and Korea. The survey team returned to AMC on 16 April 1969 and subsequently reported to DA that there were no commercial facilities in either Taiwan or Korea capable of making a recap in accordance to federal specifications, but facilities there could be upgraded to do so. However, at the time of the survey the Republic of Korea Army (ROKA) was not interested in undertaking the recapping assignment.

On 5 May 1969, DA approved the USARPAC and AMC plan to recap 4 tire sizes at an annual rate of 110,000 tires. To provide tire recapping equipment to Taiwan, a contract was awarded to Wisdom Tire Equipment Division, Honolulu, Hawaii on 30 June 1969. AMC was to provide technical assistance, U.S. rubber, and equipment valued at \$150,000 to \$180,000. After ROKA concurred, the plan was also extended to Korea, but equipment would only be supplied

when USARPAC provided Fiscal Year 1970 funds.

In both countries, plans called for limited production (LP) during the first half of Fiscal Year 1970 and full production during the second half of Fiscal Year 1970. Future plans envisioned racapping 300,000 tires per year, with an anticipated savings of 47 percent per tire and an annual savings of approximately \$4 million. All equipment would be government furnished, with Korea and Taiwan furnishing labor, facilities, and utilities.

Medical Unit, Self-Contained,
Transportable Project

During 1969, AMC continued to provide complete logistical support to the Surgeon General on this project. Six hospital systems using MUST (Medical Unit, Self-Contained, Transportable) were in operation in SEA and one of these systems was continuing TECOM integrated engineering and service tests to resolve deficiencies and shortcomings prior to initiating action to make LP items Standard A. At the end of the year, action was in progress to obtain a \$10.5 million buy on LP power packs with a carryover to Fiscal Year 1969 funds.

CHAPTER IX

(C) INTERNATIONAL LOGISTICS

(U) Evaluation of Performance

During Fiscal Year 1969 considerable progress was made in meeting international logistics commitments. In this year the general trend was downward in the Grant Aid (GA) Program and upward in Foreign Military Sales (FMS). The Military Assistance Service Funded Program, also, surged upward. There was a sharp increase in the Vietnam Army programs for modernizing and standardizing major items. Modernization of Free World Forces was expected to expand to other categories of equipment. In addition, a support system applicable to Army Forces of Thailand and Laos was supported under Unified Command/Department of Defense (DOD) programs similar to GA programs but funded by applicable Army appropriations.

At the close of Fiscal Year 1969, all plans and procedures governing the international logistics programs were evaluated and were in the process of being revised or discontinued. In addition, internal operating practices were reviewed and changes were instituted to provide maximum efficiency.

(U) Overall Management and Planning

MG Robert C. Forbes was appointed Director of International

Logistics (AMCIL) on 3 September 1968. He succeeded MG Thomas H. Lipscomb who retired on 1 August 1968.¹

Two noteworthy subordinate organizational changes during Fiscal Year 1969 were as follows:

a. On 25 February 1969, the International Logistics Field Offices (ILFO's) Far East and Europe were attached for administrative control to the Customer Assistance Offices—Pacific and Europe, respectively. Operational control of the ILFO's remained with AMCIL.

b. On 1 July 1969, the North Atlantic Treaty Organization (NATO) Supply Support Field Office—Europe was abolished and its mission was assumed by the ILFO—Europe.²

Many of the plans which were an outgrowth of the International Logistics Improvement Program, established in Fiscal Year 1966, continued to pay dividends. The directorate's role in coordinating the development of international logistics system logic for the National Automatic Data Processing (ADP) Program for AMC Logistics Management (NAPALM) provided for the ultimate in managerial control over the administration of the international logistics programs. The Support Center for International Logistics (SCIL) Ad Hoc Working Committee, chaired by the directorate, contributed significantly to the successful development of the systems design

¹ USAMC Special Orders 175, 4 Sep 1968.

² ILFO-OPRED Agreement.

package under which the International Logistics Center planned to operate with the new ADP equipment. Effective changes in concept and systems were developed to provide for central control over GA Programs and revised billing procedures for FMS.

As a result of the close monitorship of the International Logistics Supply Delivery Plans (ILSDP), this management tool was refined in format and content to provide a more effective instrument for responsive management over item requirements commitments, supply status, and delivery schedules. In addition, the excellent monitorship of the International Logistics Quarterly Review assured effective and meaningful presentation of international logistics program performance to the Assistant Secretary of the Army and other Department of the Army (DA) staff elements.

Greater emphasis by responsible organizational elements on the subject of furnishing ammunition to Central and South American countries via one vessel annually and aggressive monitorship of ammunition cases by all elements involved contributed to the efficiency and effectiveness of these shipments.

(C) Coproduction Projects

(U) During Fiscal Year 1969 the M113 APC Coproduction Project with Italy continued to progress smoothly and on schedule. At the close of the fiscal year, the Italian Army had accepted 2,650 vehicles of the M113 family that were co-produced by Italian industry. Of these vehicles 125 were M577IT's, 533 were M106IT's,

and 1,992 were M113IT's. The Italian Government had originally planned a program quantity of 3,000 vehicles to be completed in 1970. Italy's representative, however, informed the U.S. Project Manager³ that an additional 600 vehicles would be co-produced. Contract negotiations between the Italian Government and OTO-Melara, the prime contractor, were in process at the end of the year. Although release of the schedule and vehicle types for the additional quantity was awaiting contract signature, it was expected that the program would be extended to mid-1972.

(U) By the terms of the government-to-government agreement, Italy agreed to spend at least \$30 million in the United States for components, subassemblies, finished and other material obtained from industry, and documentation and technical assistance obtained from the Government. The additional 600 vehicles would increase the guaranteed reserve gold flow to \$36 million. Since Italy had already spent an estimated \$34.8 million in the United States, a \$42 million total expenditure appeared likely.

(U) FIAT, one of the Italian co-producers, produced a T130 Track for the M113 APC which gave significantly longer service than the track being produced in the United States at that time. The United States incorporated more stringent quality assurance provisions in the new contracts for track shoes produced in the United States which would be fabricated from 4140H steel (United

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Ltr, 14 Dec 1968, from Ministero della Difesa, Italy to LTC Goodall, Project Manager, M113 Italy Co-Production.

States equivalent to Italian 40CD4 steel). The M113 track produced on the new contracts was being tested by the U.S. Army Test and Evaluation Command (TECOM) at Aberdeen Proving Ground and approximately 4,000 miles had been completed in June, a 30 percent improvement over previous U.S. produced T130 track. A T130 track of improved design was fabricated at the FMC Corporation in quantities for evaluation and test. Three-dimensional stress analysis of the samples indicated that the improved design was 40 percent better than the current design. TECOM planned to start testing the improved design in July at Yuma Proving Ground.

(U) The first U.S. M113 Italy Co-Production Project Manager, COL Francis E. Abrino, was succeeded in October by LTC Arthur L. Goodall. In June, the Commanding General, AMC, advised the Project Manager⁴ that the M113 did not qualify as a project under the provisions of DA and AMC regulations. He stipulated, however, that because the government-to-government agreement precluded abolishment of the co-production mission and the designation "Project Manager," Lieutenant Colonel Goodall would retain this title without charter. Also, he would represent the U.S. Government in essentially the same manner as had Colonel Abrino in the past. Action was being taken to change the office name to the "Co-Production Management Office."

(U) The M113 Italy Co-Production Project Manager was also

⁴
CMT 1, CG, AMC (AMCSA-PM), 2 June 1969, subj: Disestablishment of the M113 Italy Coproduction Project.

the DA coordinator for the Hawk-Barter Project with Italy. Although not a true co-production program, foreign industries were involved. In exchange for one Hawk battalion of equipment, Italy was producing items worth \$24 million (in lire) which were being shipped to a third country as U.S. grant aid. All 105mm HE Howitzer Ammunition and 1½ ton superjolly trucks had been shipped. The first delivery of 106mm HEAT ammunition and the final delivery of the tank radios on contract were expected in July 1969. The initial lot of M113 APC's had been completed by OTO-MELARA. During the period January-June, all M113 vehicles produced by that firm were for this project instead of for M113 Italy Co-Production.

(U) During this fiscal year, a problem arose in connection with the M113 production for the Hawk-Barter project. The FMC Corporation received a know-how fee for each vehicle produced by Italian industry for the M113 Co-Production Project, and demanded the same fee for the vehicles being produced for the United States under the Hawk-Barter project.

(U) The AB205 helicopter was deleted from the Hawk-Barter project by DOD because of excessive cost, when compared to equivalent U.S. aircraft, coupled with the fact that the T-53-L13 engine continued to remain a long leadtime item due to U.S. priority requirements. It was established that substitute item(s) would be limited to U.S. design military item(s) that could be produced in Italy at costs comparable to U.S. sources. The selection and approval of the substitute item(s) was expected in early Fiscal Year 1970.

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(C) During Fiscal Year 1969 one coproduction project covered by agreements was added. An agreement was signed on 11 July 1968 with the NATO-Hawk Production and Logistics Organization for the study phase of a Hawk European Limited Improvement Program. This program provided the participating countries acquisition data, technical assistance and materiel relating to the U.S. Improved Hawk Missile System (US-HIP) under development, and the right to use them for possible consortium production in Europe.

(C) Final deliveries under the NATO M72 LAW (light antitank weapon) Co-ordinated Production Program with Norway and Canada were completed in May 1968. The project, however, was kept open in the event of subsequent production under an extension of the agreement. A contract⁵ between the U.S. Government and Norway extended the project by providing the United States procurement of a quantity of Norwegian-produced LAW's for training use by U.S. troops in Europe. This procurement was known as Phase 2 of this program.

(C) The Republic of Korea wanted to establish a production capability for the M16 Rifle and associated ammunition. A DOD team which included a representative from WECOM, along with representatives from Colt Industries, visited Korea in June to discuss the technical arrangements, production requirements, and

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Contract DA-JA-37-69-C-0130, dated 29 Oct 1968.

311

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financial provisions involved in establishing a coproduction line. Further discussions were required to determine the roles of Colt and the U.S. Government.

(C) The Republic of China, which already had four coproduction projects, was interested in obtaining helicopters of the UH-1H configuration through a coproduction or similar arrangement. The Coproduction Management Office had been working closely with DA on the wording of a memorandum of understanding for this program.

(C) In June 1967 the United States and Italy signed a memorandum⁶ agreeing to the general scope of future logistics cooperation and the feasibility of programs. At the beginning of Fiscal Year 1969 discussions continued on two potential projects which were an outgrowth of that agreement, i.e., the M47 Tank Worldwide Repair Parts Support, and the M47 Tank Modernization. In September, Italy indicated that their interest in assuming the repair parts support role was limited to supporting their own M47 fleet. It was mutually agreed that the United States would continue its responsibility⁷ for worldwide support of these tanks. Other countries had joined Italy in expressing an interest in tank modernization.

The Coproduction Management Office guided the efforts of TACOM

⁶

Memorandum, "Cooperative Logistics Between Italy and the United States, 18 June 1967.

⁷

ASA (I&L) memorandum for Deputy Assistant Secretary of Defense (ISA)(ISN), 24 Sep 1968, subj: Support of M47 Tanks.

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8

in preparing brochures which provided recommended components so that this modernized tank would have characteristics similar to those of the M60A1 and the M48A3 tanks. Early in 1969, the Deputy AMC Coproduction Coordinator was a member of the DA team which visited Iran, Pakistan, and Austria to brief the country representative on the U.S. plan. Austria indicated that it would modernize an M47 prototype tank. In June, a DOD team which included representatives from TACOM and ECOM, visited Iran to discuss the establishment of an M47 modernized production line in Iran, as well as the development of combat vehicle rebuild and maintenance facilities.

(U) In an effort to perpetuate a more meaningful and efficient Army coproduction program, the Coproduction Management Office volunteered comments to DCSLOG on its draft AR which implemented DOD Directive 2000.9, the first directive addressed to the coproduction concept. DA, however, published AR 795-6 substantially as drafted.

(U) The Coproduction Office at AMC was the only formalized organization within DA solely concerned with coproduction. During the fiscal year, the office managed one coproduction project and coordinated and monitored 15 others. These projects were covered

8

U.S. Army M47-M Tank-Modernization Program, Dec 1968. (2)
U.S. Army M47-M Tank-Upgunning for Modernization Program, Dec 1968.

9

Ltr, HQ, AMC to DCSLOG (DIL), 13 Aug 1968, subj: Implementation of Coproduction Programs.

10

USAMC Suppl 1 to AR 795-6 was published on 6 May 1969.

313

~~CONFIDENTIAL~~

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by agreements with six foreign countries [REDACTED] NATO and involved commodity commands and 15 different defense items. They had a value of \$1.4 billion, of which an estimated \$524 million in reverse gold flow to the United States was anticipated.

(C) International Development Programs

Background of the Programs

(U) On 1 August 1962, the Data Exchange Branch, AMCIL, assumed centralized AMC responsibility for management and administration of all international R&D programs for exchanging technical and scientific information of mutual interest to the United States and other countries. During Fiscal Year 1969 the Data Exchange Branch effectively managed these programs. The major segments of these programs were as follows: Mutual Weapons Development Data Exchange Program (MWDDEP); Defense Development Exchange Program (DDEP); U.S.-Canadian Development and Production Sharing Program; Cooperative Research and Development Program; International Professional (Scientists and Engineers) Exchange Program; and International Scientific Cooperation Program.

(U) Existing uniform procedures were analyzed and improved and AMCR 70-13 was revised 31 March 1969 for close and efficient supervision of the MWDDEP and the DDEP. AMCR 70-13 was revised on 14 April 1969 for the efficient management and establishment of uniform procedure within AMC for the International Professional Exchange Program.

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Mutual Weapons Development
Data Exchange Program

(U) The MWDDEP was a program under which participating countries exchange with the United States technical and scientific information of mutual interest. At the beginning of Fiscal Year 1969, 192 data exchange agreements were in existence. These agreements existed with Australia, Belgium, Denmark, France, Germany, Italy, the Netherlands, Norway, and Turkey. Additional agreements with these countries had been made during the year to include new areas of exchange of information of mutual interest. During the year 39 agreements were terminated and 18 agreements were initiated with a net decrease of 21 agreements.

Defense Development Exchange Program

(U) The DDEP was similar to the MWDDEP. The program was established in 1963 in furtherance of the purpose of the Mutual Assistance Program, to improve the defensive structure of the free world through participation in mutual military research and development programs. In implementation of bilateral agreements with Far Eastern countries, the Data Exchange Branch processed individual agreements which had been signed covering specific areas of research and development for the exchange of technical information with Japan, Korea, Malaya, and the Philippines. As of 30 June 1969, 15 DDEP Annexes were being managed.

(C) A memorandum of understanding concerning the exchange of Technical Information between the United States and Sweden was signed on 31 August 1962. Agreements had been entered into for

315
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the exchange of technical information in an area of mutual interest to both countries. As of 30 June 1969 the Data Exchange Branch was directing nine data exchange agreements with Sweden.

(U) In relation to the political and military policy of the specific country under consideration, net benefit to the United States was used as the sole criterion in determining whether the agreement should be continued or discontinued. Of the existing agreements, 171 were continued, 39 were discontinued, and 18 new agreements were signed. Of the 23 agreements proposed at the beginning of the year, 14 were signed as active, three were canceled, and three new proposals were initiated. As of 30 June 1969, nine agreements were in various stages of processing.

(U) Data exchange programs were expected to level off at about 170 projects per year. Projects of marginal value were to be eliminated and increased emphasis in exchange of data was to be placed on the more promising projects.

U.S.-Canadian Defense Development
and Production Sharing Programs

(U) The United States and Canada had sought the best possible coordination of their defense materiel programs and the United States was seeking to assure Canada a fair opportunity to share in the production of materiel involving programs of mutual interest and in the research and development preceding production. To achieve this two related programs were established, the U.S.-Canadian Defense Development Sharing Program and the U.S.-Canadian

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Production Sharing Program. In November, 1963, an agreement between DOD and the Canadian Defense Development Production (CDDP) established the Development Sharing Program at the DOD level and superseded a similar 1960 agreement between DA and CDDP. This was reflected in revisions to DA and AMC regulations.

(U) During Fiscal Year 1969 research and development efforts were completed on two development sharing projects and formal action for termination of two other projects was in process. One new defense development sharing project agreement, Tactical Aircraft Guidance System, was established. A total of seven projects were active at the end of the fiscal year.

(U) Final statistics were not available but it appeared that the total production sharing activity, both development and quantity production contracts and subcontracts placed by one country in the other, would be about the same as in the preceding fiscal year. Also, it was indicated that the cross-border procurement balance was again in favor of Canada. By the end of Fiscal Year 1969 the total cross-border procurement of defense materiel between the two countries for the 10 1/2 years of the joint program would amount to about \$4 billion.

(U) It was anticipated that production sharing would continue at about the same level and that the cross-border balance would continue to fluctuate in favor of one or the other countries as it had in the past. There was no change in the number of development sharing projects in force and no material

change in the total number of projects was expected in the forthcoming fiscal year.

(U) Cooperative Research and Development Program

During Fiscal Year 1969 two new project agreements were established. One was with Italy for Aluminum Alloy Research and the other was with the UK for Fuel Cell Research. None of the projects were terminated during the year. At the end of the year six cooperative R&D projects were active, not including the projects managed for the MBT-70, Heavy Equipment Transport, MALLARD, and the NATO Tactical Satellite Communication System. The six projects included the two with Italy and UK, the two with Norway on fragmentation effect of mortar shells and cloud diffusion studies, cloud diffusion studies with TN and the US/FRG/UK MILAN-MAW project.

Three proposed agreements for cooperative R&D projects were under active consideration at the end of the year: one with UK for lightweight steel and aluminum armor research; and the other two with Canada for projectile penetrator materials research and initial defense satellite communications. Coordination continued with UK and FRG on 155mm Howitzers with trilateral meetings in FRG, UK, and the United States. At the meetings an agreement was reached on further coordination actions. The three countries signed agreements on operational characteristics, information exchange, and reviewed ballistics standards for the 155mm howitzer.

(U) International Professional Exchange Program
(Scientists and Engineers)

Young German scientists and engineers that were selected to participate in this program and assigned to the Army were placed within various AMC subordinate elements. By July 1969, AMC had received 73 FRG scientists and engineers. This program offered mutual benefits to the United States and the FRG, and was to continue at the rate of approximately 20 FRG personnel being assigned per year.

On 20 April 1966, guidance was received from the Chief, Research and Development, DA, that the US/FRG Engineer and Scientists Exchange Program was considered reciprocal and AMC was asked to submit candidates for 1 year on-the-job placement within the German Ministry of Defense. This part of the program had been held in abeyance because of the AMC position that shortage of appropriate U.S. personnel did not permit participation. The AMC held this position because of its contribution of research and development personnel in SEA and demands of other high priority projects from which U.S. personnel could not be spared.

(U) International Scientific Cooperation Program

The International Scientific Cooperation Program for a global study of the ionospheric D layer and its effect on very low frequency (VLF) radio wave propagation was approved in May 1964. With the approval of the State Department, cooperative arrangements were made with qualified geophysical and radio science laboratories in various foreign countries.

During Fiscal Year 1969 the program was in full operation. No further expansion of the system of stations was planned. There were nine operating cooperative stations located at Kiruna and Stockholm, Sweden; Oslo I and Oslo II, Norway; Beirut, Lebanon; Tannarive, Malagasy; Tokyo, Japan; Brisbane, Australia; and Cardoba, Argentina. These recording sites were in addition to the stations already in existence in the United States of America. During the year the station at Sao Paulo, Brazil, was discontinued.

Excellent relations existed with information exchange on VLF work being done by the United Kingdom stations at Farnborough, England; Johannesburg, South Africa; Ottawa, Canada; and Singapore. The program received the full support of personnel of the governments and the scientific community where stations were located. Existing plans foresaw the termination of the project 1 year after the next maximum of solar activity, about 1970.

(U) ABCA Standardization

Two new working groups were added to the ABCA (American, British, Canadian and Australian) program during Fiscal Year 1969. They were the Quadripartite Working Group on Automatic Data Processing Systems and the Quadripartite Working Group on Electronic Warfare. DA had primary responsibility for the two groups.

Under the ABCA Standardization Agreement of 1964, AMC received many requests for loan of military equipment. The

United Kingdom requested a total of 23 loans for U.S. equipment, of which 12 were for major items. Among the more significant items were 2 each Coder-Burst-Transmission Group, AN/GRA-71; 223 each Projectile, 155mm, Illuminating M485E2; 800 each Fuze, M514A1E1; 1 each Searchlight, Xenon; and 1 each Ultrasonic Receiver and Transmitter.

The United States requested a total of 7 loans for UK equipment, which included the Centurian Tank; the "Eagle Beaver" Forklift Tractor, 4000 lb; and the AV1M0-Ferranti Sighting System. Canada requested a total of 13 loans for U.S. equipment, which included 7 major items. Among these were the MG Cal .50, M85 and Hispana Suiza 20mm HS 820; Howitzer, SP M109E1; Radio Set AN/PRC-74B; Grenade Launcher System, XM 176. The United States requested a total of 5 loans for Canadian equipment which included a series of chemicals, E-26 Spray Tanks.

Australia requested a total of 6 loans for U.S. equipment, which included Radar Set AN/PPS-5 and AN/TVS-4. However, neither item was available. The two 105mm Howitzers, previously requested, were shipped in March 1969. Australia also completed tests of the Sheridan/Shillelagh System and returned most of the equipment during Fiscal Year 1969. The United States requested 2 items from Australia--a troop Issue Compass (Australian made) and the magazine for the M60 machinegun.

(U) Strategic Trade and Export
Control Program

The mission of the Strategic Trade and Export Control Program

had was the review of the Strategic Trade Lists and requests for export of military-type items and technical data to foreign countries. These items were under embargo to Sino-Soviet Bloc countries and other prohibited destinations. In accordance with DOD Directive 2030.4 dated 11 December 1962, recommendations were forwarded to OSD. The International Traffic in Arms Regulation, which was revised in December 1966, was being rewritten by the Department of State. AMCR 795-9 entitled "International Logistics-Munitions Control Program for Export of U.S. Munitions List Materiel and Services and Related Technical Data" was revised and published on 20 February 1969.

The export license cases processed in Fiscal Year 1969 totaled 1,286. Many of these cases required expediting action so that applicants who requested export licenses could meet the urgent requirements in foreign countries. These cases were returned to DA in advance of the deadline date with a recommended Army position. Requests for export of materiel and technical data to foreign countries and requests for approval of license agreements increased this year by an overall 8 percent.

(C) Free World Support Program

Grant Aid Accomplishments

(U) The Fiscal Year 1968 and prior year undelivered program for Grant Aid was valued at \$610 million at the beginning of Fiscal Year 1969. The new program received during Fiscal Year 1969 amounted to \$356 million. Deliveries made during the year

against Fiscal Year 1969 and prior year programs were valued at \$454 million, leaving an undelivered balance of \$512 million as of 1 July 1969.

MAPEX

(U) In coordination with CINCPAC, in November 1968 OSD established a system code name "MAPEX." Through this code MAP countries within PACOM could obtain items of equipment which had been turned over to or reported to Property Disposal Officers (PDO's) for disposal and items for which the country had an established requirement. Authority was provided through the MAPEX for authorized PACOM MAP countries to effect transfer of items in the hands of the PDO to the MAP country, followed by submission of appropriate program data to DOD. Records were maintained at the U.S. Army International Logistics Center, New Cumberland, Pennsylvania, based on deliveries reported by the U.S. Army Depot Command, Japan. During Fiscal Year 1969, items that had an aggregate acquisition cost dollar value of \$27.8 million were obtained by PACOM MAP countries under the MAPEX.

MAP Utilization of Major Items in Long Supply

(U) Over the past several years substantial quantities of older models of tactical wheeled vehicles had been utilized in "as is" condition to satisfy certain types of MAP requirements. These vehicles became available to MAP through turn-in by the using units after receipt of replacement equipment. Due to age, mileage, and repair expenditure limitations, these vehicles were

normally offered by the commodity command to MAP "as is," "where is" at no cost to MAP except for packing, crating, handling and transportation. Offers were made to the unified command in the theater reporting the equipment. The unified commands screened qualified Grant Aid recipients in their areas for requirements, and no cost MAP Grant Aid programs were submitted for requirements that developed. If there were no MAP requirements, the vehicles were turned over to the property disposal officer for disposal action.

(U) in January 1969, DOD issued instructions regarding MAP utilization of major items in long supply (code word MIMEX). The MIMEX system was designed to allow for application of major items in long supply against MAP requirements, in either approved or shortfall categories. Initially, MIMEX was predicated on MAP utilization of assets which were in long supply but the system was expanded in May 1969 to include items that could conceivably be utilized for MAP. Included were potentially useful items not included in the defined shortfall requirements and items which could be made available for MAP on an "as is," "where is," non-reimbursable basis due to age and condition, even though there was no worldwide long supply. Thus, the MIMEX system was utilized in offering "as is" vehicles described above.

Closeout of Fiscal Year 1965 and Prior MAP
and Laos/Thailand MASF Program

(U) During September 1968, AMC and DA established an objective to reduce to zero the undelivered balances of all Fiscal Year 1965

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and prior Grant Aid and Laos/Thailand Military Assistance Service Funds programs. A quarterly progress report was required from the NICP's on all defined items and a monthly progress report from the International Logistics Center on dollar lines.

(U) Out of a total of \$16.4 million worth of undelivered defined items as of 30 September 1968, the equivalent of \$15.2 million was shipped and billed prior to the end of this fiscal year. The remaining \$1.2 million represented the dollar value of equipment in the International Logistics Supply Delivery Plan as being unavailable prior to the end of Fiscal Year 1969.

(U) The 31 May 1969 Monthly Program Status Report reflected dollar line programs totaling \$3.8 million. Eight-hundred and ninety-seven thousand dollars represented the amount of outstanding requisitions against the total dollar value programed. Non-committed residual funds were in the process of being released for programing action. DA, at AMC's request, authorized supply action to continue on an expedited basis for all items scheduled for delivery after 30 June 1969.

Supply of Weapons for the Republic of Korea

(C) Under the Grant Aid MAP 50,000 serviceable Carbine, M1 and 434,327 excess unserviceable Carbine, M1 were shipped to Korea during November-December 1968 to arm the Republic of Korea Home Defense Reserve Force (ROK HDRF). Repair parts and basic issue list items were also shipped during this period. The unserviceable carbines were rebuilt in Korea at a rate of 75,000 per month.

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(C) During June-July 1969, the following additional excess unserviceable small arms were shipped to Korea for the HDRF: 300,000 each Rifle, Cal .30, M1; 390,000 each Carbine, M1; 10,000 each Carbine, M2; 89,000 each Submachine Gun, Cal .45, M3; and 1,000 each Submachine Gun, Cal .45, M3A1. These weapons were to be rebuilt in Korea prior to issue to the ROK HDRF.

(C) In addition to the 1,274,327 assorted small arms, ten million rounds of excess Cal .30 Carbine ammunition was shipped to Korea during July 1969. All excess weapons and ammunition were supplied to Korea at no cost to the MAP program except for packing, crating, handling and transportation charges.

Scope of Foreign Military Sales Program

11

(U) The Army worldwide Foreign Military Sales (FMS) Program from the date of inception to 30 June 1969 totaled \$4,610 billion. The active Fiscal Year 1969 program totaled \$3,017 billion of which \$.561 billion represented new sales made during that year. This represented the highest value of sales ever made to foreign countries by the U.S. Army. The major countries that made these purchases were as follows:

Republic of China	\$25 million
Federal Republic of Germany	86 million
Iran	81 million
Israel	25 million
Japan	34 million

11

This data was extracted from the final DD ISA (Q) 1032 Report as authorized by AR 795-24 and published as of 30 June 1969.

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326

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(U) During this fiscal year a total of 1,660 letters of offer was made by AMC of which the foreign countries accepted 1,219 or 73.4 percent. Major equipment in these sales included the NIKE, Redeye, and Pershing Missile systems; combat vehicles; 155mm howitzers, tank combat medium, 2 1/2-ton trucks; miscellaneous trucks; ammunition; communication equipment and repair parts. Deliveries against the FMS Program totaled \$.317 billion for Fiscal Year 1969.

Helicopters - FMS

(U-FOUO) During Fiscal Year 1969 foreign governments demonstrated an increased interest in the purchase of helicopters. Accordingly, they requested that information concerning the purchase of helicopters be furnished on an expedited basis. The Government of Korea wanted to purchase 5 UH1H Helicopters (FMS Case DA Korea UA1), 1 year's initial repair parts, 2 spare engines, and ancillary equipment scheduled for in-country delivery by 10 September 1969. The Government of Chile wanted to purchase UH1H Helicopters, special ground equipment, test equipment, and 2 spare engines.

(U-FOUO) Letters of Offer for UH1H Helicopters were presented to the Government of Argentina for acceptance of FMS case DA Argentina UFN for 4 helicopters, plus support equipment; and UFP for 2 helicopters, less support equipment. Letters of Offer for the sale of 12 UH1H Helicopters were presented to the Government of Jordan and a Letter of Offer was developed for the proposed sale of 1 UH1H Helicopter to Guatemala.

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Repair of Helicopters - FMS

(U) In October 1968 AMCIL established an FMS T-53 Engine overhaul repair program and requested oversea commanders to furnish a list of countries who desired to participate in this program.¹² The list was to indicate estimated quantity, by series, for requirements in Fiscal Year 1970, Fiscal Year 1971, and Fiscal Year 1972. In implementing the program, negotiations began during Fiscal Year 1969 for selling maintenance services to the governments of Argentina, Guatemala, and Venezuela.

Suspension of Shipments to Ecuador and Peru

(C) Shipments to Ecuador were suspended on 13 December 1968.¹³ As an exception to that suspension, on 23 April 1969 DA directed¹⁴ the delivery of repair parts for armored personnel carriers. As of 30 June 1969, AMC had not received an official communication removing suspension of FMS shipments to Ecuador.

¹⁵
(C) In February 1969 a DA message provided for suspension of shipments to Peru. As of 30 June 1969 AMC had not received an official communication removing suspension of FMS shipments to Peru.

¹²
Ltr, AMCIL-MS/4, 4 Oct 1968, subj: Foreign Military Sales (FMS) Maintenance Overhaul Services for T-53 Model Aircraft Engines.

¹³
DA msg 890630, 13 Dec 1968 (C).

¹⁴
DA msg 906286, 23 Apr 1969 (C).

¹⁵
DA msg 898299, 20 Feb 1969 (C).

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Jordan - FMS

(C) During the week of 21-25 April 1969, AMC furnished to DCSLOG planning data on an extensive list of equipment for use in discussions with the Jordanian Chief of Staff. Subsequently, DA furnished to AMC a list of equipment which was approved for sale to Jordan, together with authority to provide for in-country delivery of certain equipment by 31 December 1969. The remainder of the equipment was due to be delivered by the DOD commitment data of 31 March 1970. These deliveries were identified as the 1969 Jordan Arms Package to distinguish them from other activities, such as the 1968 Jordan Arms Package.

(U) FMS letters of offer pertaining to the 1969 Jordan Arms Package were prepared by AMC. The estimated value of the 1969 Jordan Arms Package was \$29.9 million.

(U) On 18 May 1969 representatives of DA and AMC handcarried five sales cases for the 1969 Jordan Arms Package to Amman, Jordan, to negotiate acceptance by the Jordanian Government. This equipment was to be processed through the Red River Army Depot for second quality assurance inspection. By July 1969, Jordan had indicated acceptance of the above cases subject to various changes. Future action by AMC was dependent upon the necessary guidance from DA. This guidance was expected to require preparation of new letters of offer.

(U) Since Jordan desired many changes to the original letters of offer, implementation of the 1969 Jordan Arms Package

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was dependent upon receipt of ~~specific~~ requirements from the Jordanian Government, formal acceptance of new letters of offer, and finalization of funding arrangements by Jordan with the United States.

Close-out Program

(U) Based on a Secretary of Defense directive¹⁶ and in accordance with a TAG letter,¹⁷ AMC established a program of action with regard to expediting the close-out of FMS cases. During the period Fiscal Year 1959-1963, a total of 8,999 FMS cases was closed. Close-outs during the DOD close-out programs for Fiscal Year 1967 through Fiscal Year 1969 totaled 4,931 cases, as compared to 4,048 cases for the period Fiscal Year 1963 through Fiscal Year 1966.

(U) The Close-out Program was extended through Calendar¹⁸ Year 1969. During Fiscal Year 1969 a total of 16,999 FMS cases was closed. Of this total, 609 were Fiscal Year 1966 and prior year cases and 1,090 were Fiscal Year 1967 and subsequent year cases.

FMS Management Review

(U) As directed by DA, the review of FMS Programs for

16

Secretary of Defense Directive, 22 Aug 1966, subj: Department of Defense Balance of Payment Program.

17

TAG ltr, AGSC-C-LOG, 2 Sep 1966, subj: Expediting of Undelivered and Unpaid Balances.

18

DA ltr, LOG-MS/SB3, 27 Jan 1969, subj: Expediting of Undelivered and Unpaid Balances, Foreign Military Sales Cases.

19

selected countries was continued during the fiscal year. A total of 32 countries was scheduled for review during the fiscal year. On 25 April 1969,²⁰ DA directed that two additional countries be included in the reviews and authorized a 2-week slippage of 4th quarter reviews. A total of 39 countries was scheduled for review during Fiscal Year 1970.

Saudi Arabia Modernization

(U) The Saudi Arabian Mobility Program (SAMP) was a unique arrangement between the Governments of the United States and that country, in that it was the first attempt by the U.S. Army to sell a complete logistics system along with equipment to a foreign purchaser. SAMP was implemented on 26 May 1967. The initial contract was for a 5-year program, valued at approximately \$120 million, to be renegotiated after 2 years.

(U) On 26 May 1969 the U.S. Army signed and put into effect, with the Commonwealth Tumpane Company, the renegotiated follow-on contract for the third and fourth years of the Saudi Arabian Mobility Program. This contract contained an option for a fifth year, in the event the Saudis desired to continue the program. The entire program, including the fifth year, was valued at approximately \$140 million. This included procurement of 4,204 U.S. military vehicles, concurrent spare parts support, supply

19

TAG ltr, AGSC-C-LOG, 19 Apr 1967, subj: Foreign Military Sales Management Reviews, RCS-CSGLD-1396(R1).

20

DA, DCSLOG, msg 893827, 28 May 1969, subj: FMS Management Reviews.

support arrangement for follow-on repair parts support, weapons modernization, training, and construction of facilities.

(U) Due to the tremendous success of the Saudi Arabian Mobility Program, the Saudi Coast Guard/Frontier Forces requested a U.S. survey team to advise them on the feasibility of the SAMP to absorb an additional 3,000 vehicles. The team departed CONUS on 26 June 1969 with a September 1969 projected target for formal presentation of their findings to Prince Sultan, Minister of Defense and Aviation, by the U.S. Ambassador. The potential value of this program was estimated in excess of \$60 million.

Billing by the Surgeon General Against
the AMC International Logistics Program

21

(U) At a meeting on 18 April 1962, representatives of OTSG and AMC reviewed various problem areas of supply, billing, reporting and accounting of medical materiel required to support the Army's International Logistics Program. Both activities were confronted with these problem areas. A new agreement was reached to authorize the OTSG to function as a supporting activity to the AMC Program/Case Manager in the administration of the AMC International Logistics Program. A Memorandum of Understanding covering agreements for funding, supply, and billing by the appropriate office became effective 30 June 1969.

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21

Memorandum for Record, 4 June 1969.

22

Memorandum of Understanding, 4 June 1969, subj: Billing by the Surgeon General Against U.S. Army Materiel Command International Logistics Program.

Secondary Items Support

(U) The Secondary Items Support Office had the responsibility for management of Supply Support Arrangements (SSA's) with friendly foreign countries and was the staff coordination point and staff activity for intensive management of all International Logistics Program secondary items and repair parts.

(U) SSA participation increased from one country (Germany) valued at \$13.3 million in 1962 to 17 countries in Fiscal Year 1969 valued at approximately \$250 million. Significant events and actions by country, during Fiscal Year 1969, were as follows:

Australia—SSA's with the Australian Army were renegotiated and continued in effect during the year. The dollar value of the FMSO's in effect was: FMSO No. 1, \$3,376,000; FMSO No. 2, \$1,468,000; and FMSO No. 3, \$14,757. Issues valued at approximately \$1.4 million were made during the fiscal year.

Austria—The SSA between the Austrian Ministry of Defense and the U.S. Army was successfully renegotiated during June 1969. This program was valued at \$2.4 million and represented an increase of \$1.5 million over the prior year program.

Belgium—The dollar value of the program at the end of the year was approximately \$2,300,000. Information and cost data submitted during the year for support of additional end items was under review for acceptance by the Government of Belgium.

Canada—Renegotiation of three FMS Order Contracts were concluded with the Canadian Government. The dollar value of the repair parts support for the Canadian Fiscal Year 1969-70 program was approximately \$8.7 million.

China—Renegotiation of FMSO's No. 1, 2, and 3 for Calendar Year 1970 were conducted with representatives of Chief, MAAG, Republic of China, and Republic of China Armed Forces (ROCAF). Three three FMSO's were signed by the Chief, MAAG Army Section and the ROCAF representative. The Chief, MAAG, advised that funding would be completed in August 1969. The total dollar value of the China SSA program for Calendar Year 1970 was \$3,992,690.

Germany—During the year additions to the program with Germany were \$17.2 million, making the program total dollar value approximately \$120 million. During May 1969 the semiannual US/FRG supply conference was held at Hamburg, Germany, with the Federal Ministry of Defense acting as host. Presentations and discussions by appropriate agencies resulted in mutual agreement for the resolution of action and problem areas.

Iran—U.S./Iran supply support arrangements were renegotiated during this fiscal year. A significant result of this renegotiation was the reduction in the dollar value of the FMSO No. 1 pipeline from \$17.4 million to approximately \$6 million. Dollar value of materiel issued during the year was approximately \$1.5 million per quarter.

Israel—Renegotiation of FMSO contracts No. 1, 2, and 3 were concluded with the Government of Israel under SSA's. The dollar value of the repair parts support for Israel for Fiscal Year 1969-70 was approximately \$2.9 million.

Italy—The current contract provided for support of 1,000 M113 Armored Personnel Carriers. The total value of support to

Italy was about \$1.2 million for the year.

Japan—Renegotiations of FMSO's No. 1, 2, and 3 were conducted with Chief, MAAG, Japan, and Japan Self Defense Force (JSDF) representatives. The FMSO's for the Air Staff Office and the Ground Staff Office (3 each) were approved and accepted by the JSDF representatives. The total dollar value of the SSA Program for each service was as follows: Air Staff Office, \$2,291,107.53 and the Ground Staff Office, \$1,901,463.91.

NATO HAWK Production and Logistics Organization—Renegotiations of FMSO's No. 1, 2, and 3 were conducted with representatives of the U.S. NATO HAWK Liaison Office and the NATO HAWK Production and Logistics Organization (NHPLO). The three FMSO's were approved and accepted for Calendar Year 1969. The total dollar value of the SSA program for Calendar Year 1969 was \$6,210,947.85.

Norway—The current contrast which provided for support of both the Royal Norwegian Air Force and Army was renegotiated. The program, valued at \$2.8 million, supported 36 major equipments common to those in use with the U.S. Army.

Saudi Arabia—U.S./Saudi Arabia SSA covered repair parts support of approximately 4,000 transport and a relatively small number of combat vehicles purchased from the U.S. Army. The value of the U.S. depot pipeline in support of these vehicles was approximately \$3.4 million. Requisitions in the amount of approximately \$1 million were received during the 4th quarter of the fiscal year. It was expected that materiel issues worth

about \$600,000 per quarter would be made against this program. There were indications that consideration was being given to the addition of many hundred more vehicle and weapon items for support under SSA's which would substantially increase this program.

United Kingdom—The United Kingdom accomplished the necessary funding action to include additional combat vehicles under the U.S./United Kingdom SSA's. Requisitioning of repair parts directly from the U.S. Army depot system for support of these vehicles was under way and support was to come from CONUS.

(U) Added to the SSA were 50 M109 howitzers; 37 M107 guns; and six M578 recovery vehicles for a total value of \$1.5 million. Further additions to this program were anticipated.

CHAPTER X

(U) QUALITY ASSURANCE

Depot Operations

In 1968, an in-depth review was conducted of the repair and rehabilitation operations of the U.S. Army Materiel Command (AMC) depots performing work for the Agency for International Development (AID) under an AID/Army/GSA (General Services Administration) Memorandum of Understanding dated 19 August 1965. This review revealed that difficulties and confusion were being caused with respect to the assignment of responsibilities, lack of procedures relating to the selection of unserviceable assets, determination of work requirements, scope of repairs to be accomplished, and the billing procedures to be used for reimbursements to the depots accomplishing the work. Also, the review disclosed that numerous independent agreements had been consummated among individual depots and the local AID regional offices. Although the agreements conformed generally with the provisions of the Department of the Army (DA)/AID/GSA agreements, all differed in content and scope. This made it evident that there was a need for a single-standard agreement. Accordingly, action was initiated to develop such an agreement during Fiscal Year 1969. At the close of the fiscal year, the final draft was being staffed within AMC prior to formal submission to AID for approval.

Six AMC depots, namely, Atlanta, Charleston, Granite City, Sharpe, Tobyhanna, and Toole were engaged in performing on-site

inspection functions at the contractors' plants for rebuild and rehabilitation contracts administered by the respective depots. The applicable Armed Services Procurement Regulation (ASPR) required that maximum use be made of contract administration offices established by the Defense Contract Administration Services (DCAS) and the military departments. Action was taken with Defense Supply Agency (DSA) to arrange for an orderly transfer to DCAS of the on-site inspection functions. A draft Memorandum of Agreement to effect the transfer of functions was forwarded to DSA for review and approval. DSA requested and was provided additional data relating to workload, personnel, funding, and other pertinent data for use in developing a more detailed memorandum of understanding between AMC and DSA. It was contemplated that the transfer of functions would be completed prior to the 2d Quarter, Fiscal Year 1970.

The command made a major revision of AMCR 702-7, Depot Quality Assurance, which prescribed policies and procedures for establishing and maintaining a quality management system during all phases of depot maintenance and supply operations. The purpose of the revision was to provide additional guidance relating to procedures for conducting cyclical inspection of materiel in storage and to provide more definitive requirements regarding initial inspection of major items received for the first time or from suspect producers. The regulation also provided for changes to reporting procedures for the inspection of major items, for policies and

procedures relating to waiver and deviation control, for requirements for monthly reporting of depot quality summary reports, for guidance in the certification of special skills personnel, and for a number of other major changes to improve the Depot Quality Program. The draft revision was staffed during the last quarter of Fiscal Year 1969 with all AMC commodity commands, depots, and all interested elements of AMC Headquarters. The revision was expected to be readied for publication during the 1st Quarter, Fiscal Year 1970.

Value Engineering

A total of 857 Value Engineering Change Proposals (VECP's) from AMC contractors exceeded the established Fiscal Year 1969 objective of 750 VECP's. The 857 VECP's were received from 177 different AMC contractors and carried a potential gross savings impact of \$112.6 million. Four hundred and three VECP's were approved with an estimated gross value of \$31.2 million and a net estimated savings to the Government of \$19.7 million. A total of 293 VECP's were disapproved during the fiscal year. The approval rate for Fiscal Year 1969 was 58 percent. Additionally, Natick Laboratories reported receipt of 65 VECP's that originated as a result of DSA value engineering activity. During the fiscal year 33 VECP's from DSA sources were approved and 38 were disapproved.

Objectives for commodity commands also called for the origination of 450 in-house Value Engineering Proposals (VEP's). This

objective was exceeded with the submission of 620 VEP's. A total of 377 proposals with an estimated value of \$90.4 million was approved and 64 proposals were rejected for an overall approval rate of 85 percent. AMC depots, with an annual objective of 300 in-house proposals, significantly exceeded their objective. They reported 334 proposals of which 295 were approved with a potential estimated savings of more than \$9 million.

AMC activities reported validated savings in excess of \$99.6 million in this program, which exceeded the Army assigned goal of \$61 million for the value engineering area of the Department of Defense (DOD) Cost Reduction Program. The U.S. Army Munitions Command (MUCOM), which contributed over \$31.3 million of the savings reported, made the most outstanding contribution of the AMC subordinate elements.

AMC Headquarters value engineering personnel continued to support the Army member of the DOD Value Engineering Council at the council's monthly meetings. On 19 November 1968, AMC briefed the council on the method of assigning value engineering goals for in-house activity, contractor VECP's, and the method of review and evaluation of results attained by the subordinate commands and activities. In March 1969, representatives of the U.S. Army Weapons Command (WECOM) and the Office of the Project Manager for Rifles gave a presentation to the council on the application of value engineering on the Grenade Launcher Adaptor Device (GLAD) Program. In further support of the council's activities, AMC also

furnished three value engineering candidate projects for the DOD Value Engineering Services Office (VESO).

On 24 and 25 June 1969, a representative of the Directorate of Quality Assurance (AMCQA) attended the National Engineering Information Conference sponsored by the Office of Science and Technology, Executive Office of the President. The conference revealed that the program had become a part of the information exchange system of various U.S. industrial concerns and universities. It further disclosed that value engineering was an activity which was being actively sponsored by the Ministry of Technology in the United Kingdom, as well as by the Canadian Department of Industry.

Product Acquisition

AMCR 702-13, published on 7 August 1969, covered a product quality analysis program for repair parts. The purpose of this program was to determine the degree that repair parts procured by AMC possessed the quality standards necessary to support user requirements. When implemented, this program would provide management with information as to quality trends and would indicate where preventative and/or corrective actions were required to effect quality improvements in repair parts.

On 30 April 1969, a draft of a proposed Army regulation (AR) on production testing was forwarded to the Deputy Chief of Staff for Logistics (DCSLOG) for review, coordination, and publication.

This draft regulation resulted from a project assigned to AMCQA by DCSLOG to establish Army policy and outline procedures for first article testing and initial production testing of materiel procured and/or produced to assure its conformance to specifications and performance requirements.

Zero Defects

During Fiscal Year 1969, a high level of interest was maintained in the Zero Defects Program by a total of 68 AMC commands, arsenals, depots, and activities, including 14 Government-owned, contractor-operated (GOCO) facilities.

In a workshop for supervisors that was designed to improve and increase interest in the zero defects concept, the program gained substantially from the participation of over 7,800 mid-managers and first-line supervisors. This workshop program, which was developed by AMC, had been formally adopted for worldwide use by the Army and Navy. The Comptroller of the Army had previously recognized the AMC workshop as being an outstanding management improvement technique.

Army Metrology and Calibration System

During the fiscal year the Army Standards Laboratory of the Army Metrology and Calibration Center assumed operational and technical control of the 95th CS Calibration Company.¹ After the completion of requisite training and after passing a series of

¹
AMC General Orders 44, 11 June 1968. (2) MICOM General Orders 50, 28 June 1968.

inspections, the Army transfer teams assigned to the Company were activated. The transfer teams were dispatched to the Congo, Fort Huachuca, Tobyhanna Army Depot, and Fort Benning.

One hundred and nineteen standards and accessories were developed for use in the Army field calibration system at Army Calibration Laboratory and team levels. Of these 119 items, 63 were needed for support of new requirements already fielded. Each item resulted in an engineering release for procurement and addition to the calibration set.

A new technical bulletin (TB) TB 750-236 was published in September 1968. The publication obviated the need to employ 20 separate documents sponsored by the various commodity commands and other Army activities. At the end of this fiscal year, action was underway to refine the document and to assure that all appropriate Army requirements were identified.

The pertinent technical manual (TM 38-750) and form (DA Form 2416) were revised to facilitate the reporting of the levels of calibration on the common form. Basic computer programing required for implementation of the reporting system was completed and implemented on a pilot basis. It was anticipated that this reporting system would serve as a baseline for assessing and improving the overall program.

The specification (MIL-C-45662A) on calibration system requirements was revised in a joint service effort. This specification had a very substantial impact on industry and, therefore, was

subjected to extensive industry coordination. At the end of this fiscal year, the document was in its final stages of coordination and was to be resubmitted to DOD for publication during the first half of Fiscal Year 1970.

Recommendations made jointly in the Combat Developments Command (CDC)/the U.S. Army Continental Army Command (CONARC)/AMC study of the Worldwide Army Metrology and Calibration System were basically approved by DA. In a major recommendation, CDC was directed to prepare a qualitative materiel requirement (QMR) covering the establishment of a configured maintenance calibration set. Adoption of this concept would change the existing concept to provide for a separate maintenance calibration set. Under current concepts, maintenance calibration was accomplished by employing calibrated test and measuring equipment which served a dual purpose, namely, maintenance work and calibration.

Quality Engineering

During Fiscal Year 1969, AMCQA published or assisted in the development of several publications pertaining to quality engineering.

Representatives of this directorate assisted in the development of the Army's System Engineering Management Pamphlet (TM 38-760) by developing the test cycle portion. As of the end of the fiscal year, this technical manual was in draft form. In April 1969, AMCP 702-6, "Controlled Data Collection and Analysis

Programs," was published for procedural guidance to the field. Another pamphlet (AMCP 702-5), "Planning Guide for Demonstration and Assessment of Reliability and Durability," was published in February 1969. It projected a simplified approach, applying Bayesian statistics, for determining the approximate quality of equipment to be tested and assuring specified performance with stated confidence. This publication provided tables and charts, together with explanatory information, for the design and analysis of reliability and durability demonstration tests of complex items in accordance with the pertinent Army regulation (AR 705-50, Army Materiel Reliability and Maintainability). The tables and charts had been furnished to AMC major subordinate commands and project managers by the Commanding General, AMC, on 5 November 1968. The Commanding General expressed the desire that all concerned elements be aware of how these charts could serve as a planning guide for the test and evaluation of complex equipment. A draft of the Failure Analysis Control System (FACS) was completed during Fiscal Year 1969 and, at the end of the fiscal year, was being staffed through AMC Headquarters.

The National Automatic Data Processing Program for Army Materiel Command Logistics Management (NAPALM) was reassessed to incorporate advances made in the Quality Assurance System. A new sub-cell was organized, entitled "Reliability, Maintainability, and Systems Assessment," which was to be further developed to incorporate Systems Performance Status Reporting (SPSR) as a

result of the Technical Performance Measurements (TPM).

Senior representatives of the Office of the Secretary of Defense (Installations & Logistics) (OSD (I&L)) and the Office of Director of Defense Research and Engineering (ODDR&E) who were responsible for all DOD quality and reliability effort were briefed in July 1968 by personnel of the Quality Engineering Division, AMCQA. The subject concerned the status of Army implementation of recommendations made at the DOD Quality and Reliability Conference which was held in 1966 at Annapolis, Maryland. A favorable reaction to the Army's progress and plans was expressed by the senior OSD (I&L) representative who considered the Army's briefing a model outline for the subsequent DOD Contract Management Conference held in Dallas, Texas, in the fall of 1968. A similar reaction was offered by the senior ODDR&E representative who stated that it was evident that the Army was "moving out" in the areas of quality and reliability.

The Quality Assurance and Reliability Engineer Intern Training Program, initiated in Fiscal Year 1967, was continued in Fiscal Year 1969 at the Army Management Engineering Training Agency. Seventeen interns graduated in December 1968. Sixteen were assigned to AMC field commands and installations, and one to the Quality Engineering Division of this directorate.

CHAPTER XI

(U) CONCLUSION

Fiscal Year 1969 was a year of challenge and accomplishment. The U.S. Army Materiel Command (AMC) again demonstrated its ability to respond quickly to the needs of the war in Vietnam. The Command overcame difficult problems in development, procurement, and distribution of materiel to the combat forces.

After rising steadily over a period of 4 years, overall Army personnel strength reached a peak during this fiscal year and began to decrease slightly as the year ended. The Army's commitment in Vietnam leveled off with the arrival early in the year of a brigade scheduled for deployment to the war zone. The year closed with prospects for a substantial reduction following President Nixon's announcement in June 1969 that 25,000 troops would be withdrawn from Vietnam by August. More troop reductions were expected as South Vietnam forces became capable of replacing American units. The Army accelerated its efforts during the year in training and equipping South Vietnam forces to assume an increasing share of the war effort. American troops in Vietnam decreased by approximately 59,000 in Fiscal Year 1969 leaving slightly over 300,000 troops in the combat zone in June 1969.

With prospects for a gradual reduction in U.S. forces in Southeast Asia, plans and programs were instituted for a phased and orderly redistribution of materiel throughout the Pacific area. Excess stocks were being identified, classified, and transferred to

meet the required level. At the end of Fiscal Year 1969, general plans for a gradual reduction in manpower and expenditures unfolded. While enemy intentions were still to be considered, there was a general expectation that the stabilization in the Army and the war begun in Fiscal Year 1969 would be continued in the next fiscal year.

In retrospect, for almost a decade after the end of the Korean War, American military policy was founded on the assumption that the most serious threat to national security was all-out nuclear war with the Soviet Union. During that decade a package of interrelated military, political, and economic concepts dominated defense thinking. The main strategic tenet of the New Look was the doctrine of massive nuclear retaliation as a deterrent to global war. So the United States was going to cut down expensive ground forces and rely more on air power and atomic weapons. This meant less money for ground forces and conventional equipment.¹

From its inception the Army was not happy with this strategy. Any move toward push-button warfare meant upsetting the balance of power that had evolved among the Army, Navy, and Air Force since unification of the services in 1947.

Moreover, appropriations for the Army were cut to the bone. But the course of events undermined the New Look strategy. In August 1953, with news of a Soviet hydrogen explosion, the era of

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Speech, John Foster Dulles, before Council of Foreign Relations, New York, 12 Jan 1954.

a nuclear stalemate opened. While the chance of a world holocaust was not likely, the possibility for brush fire wars remained.

The Korean armistice was hardly signed when the civil war in Indochina, which had been dragging on since 1946, erupted into a major communist assault on Dienbienphu. In May 1954 Dienbienphu fell and an Indochina truce was signed on 20 July. That same day Secretary of Defense Charles E. Wilson announced that a planned reduction in the troop strength of the Army had been cancelled. The lessons of Dienbienphu and Korea had tipped the scale in favor of the doctrine of flexible graduated response in the National Security Council and among the Joint Chiefs of Staff (JCS).² Supporters of this doctrine agreed, however, that the nuclear striking power of strategic bomber and missile forces should remain the ultimate defense.

The Kennedy administration began a review of defense posture in 1961 and the Secretary of the Army appointed the Hoelscher Committee to recommend reforms that would place the Army on a modern basis. Study Group D was to plan a modern supply system for the Army. The Hoelscher Report called for the consolidation of all functions relating to development, procurement, and fielding of materiel in one single logistics command. This was done as

²
Maxwell D. Taylor, The Uncertain Trumpet (New York, 1959), pp. 30-34.

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explained in previous AMC publications.

Several attempts had been made to improve and modernize the Army supply system between the end of the Korean War and 1961. Since the efforts were sporadic and limited to phases of the supply cycle, the basic system remained unchanged. Several modifications were made in the Army's logistics system between 1961 and 1969, but the organization remained basically the same.

On 17 February 1969, Deputy Secretary of Defense David Packard established the Joint Logistics Review Board (JLRB) under the chairmanship of GEN Frank S. Besson, Jr. General Besson was directed to review worldwide logistics support to U.S. combat forces during the Vietnam era. He was to identify strengths and weaknesses and make recommendations for improvement. This encompassed an examination of the military logistics posture from the commencement of the Vietnam buildup in March 1965 and the factors that affected the responsiveness of logistics support to the forces in Vietnam as well as their impact on readiness in other areas of the world. Emphasis was to be given to the effectiveness and economy of current and planned logistics systems under combat conditions and the quick reaction capabilities of these systems to meet situations and emergencies worldwide. The JLRB was also to

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(1) Study of the Functions, Organization and Procedures of the Department of the Army, OSD Project 80 (Army), parts I-VII (Washington, Oct 1961). (2) AMC Historical Summary, FY 1963, pp. 1-78.

identify lessons learned which might have a significant effect on
future combat operations.⁴

Concerning the lack of logistics support of the Army at the beginning of the war in Vietnam, General Besson referred to a similar example, some two decades before, soon after the United States entered World War II. LTG George Patton struck across northern France, excelling the speed of the German Blitzkrieg five years before. But General Patton outstripped his logistics support, and his lightning stab toward the Rhineland ground to a halt. Logistics, or the lack thereof, had accomplished what the retreating German Army could not do. But the "Red Ball" express soon came into being and a steady stream of supplies began to roll in to support the allied forces.

As explained by General Besson, two decades later a comparable scene was enacted when President Johnson decided to rush combat troops to Southeast Asia. The troops were committed and the United States was engaged in a full-scale entry into the Vietnam conflict. But no support base had been built or stocked. Logistics support was supposed to catch up, although the battlefield was at the end of the longest pipeline in history.

Yet the task was performed. Roads, troop housing, depots, POL

⁴
DEPSECDEF, Memo, subj: Joint Logistic Review Board (JLRB), 17 Feb 1969. The Board consisted of GEN F. S. Besson, Jr.; LTG Frederick L. Wieseman, USMC (Retired); LTG Lewis L. Mundell, USAF; VAdm Edwin B. Hooper, USN; LTG Oren E. Hurlbut, USA; RAdm John W. Bottoms, USN (Retired); COL John W. Hanley, USAF; and COL H. T. Casey, USA.

storage areas, port facilities, and air fields were built. But the men responsible for finding solutions to the many logistics problems contended that there simply had to have been more proficient methods of overall planning to get the job done.

General Besson was one of the prime motivators of the logistics system as it currently existed within the Army. He believed that no troops in combat had ever been better supported. The current review by the JLRB did not stem from any conviction that there was inadequate support. Rather, according to General Besson, there was a feeling that the job might have been accomplished with less financial burden.

The JLRB began its work on 3 March 1969. One of the Board's initial tasks was to prepare a detailed study plan outlining the structure of its staff, the procedures to be followed, and the funding that would be required. The study plan was completed and submitted to the Pentagon on 18 March 1969 and was approved by Secretary of Defense Laird and the JCS in mid-April. A preliminary estimate indicated that the Board would number from 170 to 180 personnel—105 logistics specialists in the grade of colonel or lieutenant colonel or comparable civilian grades, and an administrative staff of approximately 71. Expenditures of the JLRB were estimated to run approximately \$1.5 million, exclusive of personnel and office costs. This estimate covered furniture, travel expenses, contractual services and similar items, as well as top level

contractual people, including systems analysts, managerial types, and writers.

Ultimately, the JLRB report was to adhere to the following general outline: Vietnam conflict-scenario; logistics posture at start of the build-up in Vietnam and Southeast Asia; responsibilities and logistics systems of the services; effectiveness and responsiveness of support to Southeast Asia; impact on readiness worldwide; strengths, weaknesses, and lessons learned; and recommendations. Each chapter of the report was to have an action officer assigned from each of the services. The chapter was to develop the data leading toward conclusions, and subsequent recommendations were to be made by the Board as a whole. Periodic progress reports were to be made. The final findings and recommendations were then to be submitted to the Secretary of Defense and the chairman of the Joint Chiefs of Staff.

General Besson emphasized that logistical changes were inherent in the environment of the Vietnam war. Since it was in support of political objectives, actions could not be taken which might be interpreted as an escalating step. While General Besson maintained that the troops in Vietnam were never badly in need of support, he did not say that everything was perfect. He pointed to the fact that some materiel was sent back unused as obvious evidence of some inadequate guesses. While a part of the unused materiel could be attributed to poor guesses, he believed that some was undoubtedly due to adjustments in the way the war developed.

General Besson was asked if it were not rather ironic that the men who were currently reviewing the logistics system were the same men who had been instrumental in establishing the system. His considered reply was that there was no reason not to be completely objective, that none of the JLRB members had any military "rows to hoe," and that this was a terminal assignment for most of them. There was no question in his mind that any prejudices would be overridden by the breadth of talent of the decisionmaking body. The JLRB was required to submit the results of its review and its recommendations by April 1970.⁵

GEN Ferdinand J. Chesarek succeeded General Besson as Commanding General of AMC in March 1969 after having served since August 1967 as Assistant Vice Chief of Staff and overseer of the Army staff's efforts to improve the management and utilization of Army resources.⁶ He believed that there had been substantial improvement in defense management with centralized control in the past decade. However, he questioned whether a continued expansion of centralized control was in the best interests of defense management. He believed that the challenge was in achieving a proper balance. This balance, he thought should extend to Department of Defense (DOD) level as well as downward to the Army's subordinate units. General Chesarek had these words of caution for military managers at all levels: "Inbred in any system of

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(1) Ibid. (2) Armed Forces Management, May 1969, pp. 49-51, "Blue Chip Team Tackles Logistics Systems Review." This article is based on an interview of General Besson by the Editor of AFM.

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AMC GO 37, 10 Mar 1969.

centralized management is the lethal germ of overuse of power."⁷

Among the highlights during General Chesarek's command was the establishment of a Deputy Commanding General for Materiel Acquisitions and a Deputy Commanding General for Logistics Support who were responsible for command supervision of their respective areas and of command resources. He combined the Directorate of Materiel Requirements and Directorate of Procurement and Production to form the Directorate of Requirements and Procurement. He also reaffirmed the position of Deputy for Laboratories, substantially reduced the number of project managers, and reassigned most of the remaining project managers to the commodity commands.⁸

In summarizing, it should be recalled that AMC had fewer people with which to accomplish the workload during Fiscal Year 1969 than in the previous year. Actual civilian personnel strength in the Command dropped from slightly above 166,000 to nearly 160,000. Meanwhile, total Army civilians increased by over 12,000. There was also a decrease of nearly 1,000 in the military personnel

⁷ Armed Forces Management, Feb 1969, pp. 38, 43-44, "Is There Danger In Expanding Centralization?" This article is based on an interview of General Chesarek by the Editor of AFM.

⁸ (1) Presentation by GEN Ferdinand J. Chesarek to GEN William C. Westmoreland, CofSA, 2 May 1969, subj: Realignment of Organizational Structure, Headquarters, AMC. (2) DF, MG Robert C. Forbes, Actg CofS, HQ AMC, to Directorates/Staff Offices, 16 May 1969, subj: Realignment of Headquarters, AMC. The first phase of the reorganization began on 2 June 1969. (3) DF, Actg CofS, AMC, to DCG for Materiel Acquisition, et al, 13 June 1969. This DF provided guidance for completing the third phase of the 1969 reorganization of Headquarters, AMC.

strength of the Command. With reference to funds, for the last four fiscal years (1966-1969), AMC's annual budget averaged nearly \$15 billion. Funding resources and allocation of personnel were the two most critical management problems facing AMC in this fiscal year.

During the year, the Command initiated action for the disposition or relocation of several facilities. For example, AMC began actions to transfer several hundred acres of land at Rocky Mountain Arsenal to Denver, Colorado, to expand an airport; the U.S. Army Missile Command submitted an excess report for the Michigan Missile Plant that was later withdrawn in favor of a plan for leasing vacant portions of the plant; the Deputy Chief of Staff for Logistics approved a report on the disposal of the Niagara Falls Army Chemical Plant; and Congress approved a planned relocation of the Harry Diamond Laboratories from Washington, D. C., to White Oak, Maryland, but this move was not accomplished within the year.

The General Services Administration at the request of DOD also continued to search for approximately 600,000 square feet of space in northern Virginia to house AMC Headquarters and related activities. The target date for occupancy was the fall of 1971. The Headquarters currently occupied space in five government-owned facilities and four commercial buildings. Most of the personnel were housed in Tempo 7 at Gravelly Point, Virginia. Others were scattered among eight commercial sites located in Washington, D. C.,

Fairfax County, Alexandria, Falls Church, and Arlington, Virginia. The consensus was that a suitable place with adequate housing and available public transportation could be found in northern Virginia within a 10-mile radius of the Pentagon.

As a guide for developing new items, the Army Chief of Staff issued revised editions of the Combat Development Objectives Guide (CDOG) at intervals in which he set forth Department of the Army approved requirements. This statement did not signify that development on all items would be accomplished currently, but meant that all items for which requirements had been authorized conformed to approved Department of the Army programs. CDOG served as a guide for combat development activities and the research and development program.

As AMC faced the 1970's, public scrutiny was focused more intensely on military spending than in previous years. As a result, the Department of Defense was facing strong pressure to reduce personnel and spending. The Armed Forces were being required to reduce their force structures while heavily engaged in hostilities in Vietnam. Such was the environment in which the government was contracting in the market place. AMC faced a challenge to do more with less. In response, the Command focused sharp attention on the problems of weapons systems acquisition. AMC realized that it had sometimes paid too much for what was received from industry. In some cases, AMC had not adequately defined its

requirements for industry. Both had been optimistic in estimating costs. In addition to estimating costs, in mid-1969, Assistant Secretary of Defense Packard outlined the following other areas in acquisition management that needed improvement: control of changes in on-going programs; comprehensive assessment of risk before system development; use of competitive prototypes in developments; and con-
10
current development, test, and evaluation.

GEN William C. Westmoreland, U.S. Army Chief of Staff, in the fall of 1969, told the Association of the U.S. Army that the success of the Army's fighting forces was a direct reflection of the Army Materiel Command's ability to keep the fighting men supplied with the best and most advanced materiel. In commenting on the complexity of modern equipment, General Westmoreland emphasized that on the battlefield of the future, enemy forces would be located, tracked, and targeted through computer assisted intelligence evaluation and automated fire control. He added that we could then destroy anything we located through instant communications and the almost instantaneous application of highly lethal firepower. He told the Association that we were on the threshold of achieving maximum utilization of our firepower and mobility and announced that the U.S. Army was establishing a test facility at Fort Hood, Texas, through which new equipment, new organizations, and new techniques
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could be subjected to experimentation, evaluation, and integration.

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MG Paul A. Feyereisen, "PROMAP-70 A Dynamic Approach to Acquisition Management," Army Logistician, Sep-Oct 1970, pp. 4-7, 39.

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Speech, GEN W. C. Westmoreland, U.S. Army CofS, before Association of U.S. Army, Washington, D. C., 14 Oct 1969.

(U) GLOSSARY

AACOMS	Army area communications system
AAFSS	Advanced Aerial Fire Support System
ABCA	American, British, Canadian, and Australian
ACIMS	Aviation Component Intensive Management
ACMA	Army Class Manager Activities
ACSFOR	Assistant Chief of Staff for Force Development
ADP	Automatic data processing
ADPE	Automatic data processing equipment
ADPS	Automated Data Processing System
AEC	Atomic Energy Commission
AFB	Air Force Base
AFDP	Army Force Development Plan
AFLC	Air Force Logistics Command
AFSC	Air Force Systems Command
AHWG	Ad Hoc Working Group
AID	Agency for International Development
AIF	Army Industrial Fund
ALMC	Army Logistics Management Center
ALMSA	Automated Logistics Management Systems Agency
ALRTF	Army Long Range Technological Forecast
AMC	U.S. Army Materiel Command
AMCA	U.S. Army Advanced Materiel Concepts Agency
AMCB	AMC Board
AMCCCS	AMC Command and Control System
AMCDLS	Deputy Commanding General for Logistics Support, AMC
AMCDT	Directorate of Distribution and Transportation, AMC
AMC GO	AMC General Order
AMCID	AMC Installations Division
AMCIL	Directorate of International Logistics, AMC
AMCIS	Directorate of Installations and Services, AMC
AMCM	AMC memorandum
AMCMA	Directorate of Maintenance, AMC
AMCMI	Directorate of Major Items, AMC
AMCMR	Directorate of Materiel Requirements, AMC
AMCMS	Directorate of Management Information Systems
AMCOC	AMC Operations Center
AMCP	AMC Pamphlet
AMCPI	AMC Procurement Instruction
AMCPP	Directorate of Procurement and Production, AMC
AMCQA	Directorate of Quality Assurance, AMC
AMCR	AMC regulation
AMCRD	Directorate of Research and Development, AMC
AMCSU	Directorate of Supply, AMC
AMETA	U.S. Army Management Engineering Training Agency
AMP	Army Materiel Plan

GLOSSARY (Continued)

AMSF	Area Maintenance Support Facilities
APC	Armored Personnel Carrier; Army Pictorial Center
APE	Advance Production Engineering
APG	Aberdeen Proving Ground
APSA	U.S. Army Ammunition Procurement and Supply Agency
AR	Army regulation
AR/AAV	Armored Reconnaissance/Airborne Assault Vehicle
ARADCOM	Army Air Defense Command
ARADMAC	U.S. Army Aeronautical Depot Maintenance Center
ARFORSTAT	Army force status reporting system
ARMS	Army Master Data File Reader Microfilm System
ARNGUS	Army National Guard of the United States
ARPA	Advanced Research Project Agency
ARVN	Army Republic of Vietnam
ASA	Army Security Agency; Assistant Secretary of the Army
ASF	Army Stock Fund
ASL	Automated stockage list
ASP	Army Strategic Plan
ASPR	Armed Services Procurement Regulation
ASOD	Assistant Secretary of Defense
AUTODIN	Automatic digital network
AVSCOM	U.S. Army Aviation Systems Command
BDL	Beach Discharge Lighter
BG	Brigadier General
BII	Basic Issue Item
BIRDIE	Battery integration and radar display equipment
BOB	Bureau of the Budget
CAMERA	Command Management Review and Analysis
CAO	Customer Assistance Office
CAVAMP	Central Asset Visibility and Management Program
CB	Chemical biological
CDC	Combat Developments Command
CDOG	Combat Development Objective Guide
CDDP	Canadian Defense Development Production
CER	Cost estimating relationship
CG	Commanding General
CIDSTAT	Civil Disturbance Status Reporting System
CINCPAC	Commander-in-Chief, Pacific
CINCUSAREUR	Commander-in-Chief, U.S. Army, Europe
CINCUSARPAC	Commander-in-Chief, U.S. Army, Pacific
CIR	Cost Information Reports
CLS	Closed Loop Support

GLOSSARY (Continued)

CofS	Chief of Staff
COL	Colonel
COMSEC	Communications security
COMUSMACV	Commander, U.S. Military Assistance Command, Vietnam
CONARC	U.S. Army Continental Army Command
CONUS	Continental United States
CPAF	Cost-Plus-Award-Fee
CPEG	Contractor Performance Evaluation Group
CPFF	Cost-Plus-a-Fixed-Fee
CS	Composite Service
CSM	Chief of Staff Memorandum
DA	Department of the Army
DAAS	Defense Automatic Addressing System
DACCS	DA Command and Control System
DADAC	DA Distribution/Allocations Committee
DA GO	DA General Order
DASA	Defense Atomic Support Agency
DASSO	DA Systems Staff Officer
DAXREP	DA Command and Control Reporting System
DCA	Defense Communications Agency
DCAS	Defense Contract Administration Services
DCGLS	Deputy Commanding General for Logistics Support
DCPG	Defense Communications Planning Group
DCSOPS	Deputy Chief of Staff for Operations
DCSLOG	Deputy Chief of Staff for Logistics
DDEP	Defense Development Exchange Program
DEPSECDEF	Deputy Secretary of Defense
DIMATE	Depot Installed Maintenance Automatic Test Equipment
DIPEC	Defense Industrial Plant Equipment Center
DOD	Department of Defense
DSA	Defense Supply Agency
DSCP	Defense Satellite Communications Program
DSCS	Defense Satellite Communications System
DSU	Direct support unit
DTC	Deseret Test Center
DTRA	Defense Technical Review Agency
EAM	Electronic Accounting Machine
EASTT	Experimental Army Satellite Tactical Terminal
ECCM	Electronic counter-countermeasures
ECOM	U.S. Army Electronics Command
EFC	Equivalent Full Charge
ENSURE	Expediting Non-Standard Urgent Requirements for Equipment
EOD	Explosive Ordnance Disposal
ET/ST	Engineering test/service test

GLOSSARY (Continued)

FAA	Federal Aviation Agency
FAAR	Forward Area Alerting Radar
FACS	Failure Analysis Control System
FADAC	Field Artillery Digital Automatic Computer
FAE	Fuel Air Explosive
FARE	Foreword Area Refueling Equipment
FDL	Fast Deployment Logistical
FFAR	Folding Fin Aerial Rocket
FLIR	Forward looking infrared
FMC	Food Machinery Corporation
FMS	Foreign Military Sales
FMSO	Foreign Military Sales Order
FRG	Federal Republic of Germany
FSN	Federal stock number
FY	Fiscal Year
GA	Grant Aid
GE	General Electric
GEN	General
GFE	Government furnished equipment
GLAD	Grenade Launcher Adaptor Device
GMC	General Motors Corporation
GOCO	Government-owned, contractor-operated
GSA	General Services Administration
GSU	General support unit
HDRF	Home Defense Reserve Force
HE	High explosive
HET	Heavy Equipment Transporter
IBM	International Business Machines
ICC	Inventory control center
IFF	Identification, friend or foe
ILC	Institute of Land Combat
ILFO	International Logistics Field Office
ILSDP	International Logistics Supply Delivery Plans
IPE	Industrial plant equipment
IPR	In-process review
IPT	Initial production tests
IR	Infrared
ITAG	Intelligence Threat Analysis Group
JCS	Joint Chiefs of Staff
JEA	Joint Engineering Agency
JLRB	Joint Logistics Review Board

GLOSSARY (Continued)

JMPTC	Joint Military Packaging Training Center
JOP	Joint Operating Procedures
JSDF	Japan Self Defense Force
LARC	Lighter amphibious resupply cargo
LAW	Light Antitank Weapon
LC	Letter contracts
LCM	Landing craft, mechanized
LCOP	Logistics Control Office, Pacific
LCSS	Land Combat System Study
LCU	Landing craft, utility
LDC	Logistics Data Center
LLLTV	Low light level television
LOH	Light Observation Helicopter
LOHAP	Light Observation Helicopter Avionics Package
LOTS	Logistical Over-the-Shore
LP	Limited production
LT	Lieutenant
LTC	Lieutenant Colonel
MAAG	Military Assistance Advisory Group
MACV	Military Assistance Command, Vietnam
MASF	Military Assistance Service Funds
MASTS	Manned Aerial Surveillance and Target Acquisition System
MAVS	Manned Aerial Vehicle for Surveillance
MBT	Main Battle Tank
MCA	Military Construction, Army
MEAFSA	Middle East-Southern Asia-Africa South of the Sahara
MECOM	U.S. Army Mobility Equipment Command
MG	Major General
MICOM	U.S. Army Missile Command
MIDA	Major Item Data Agency
MILSTEP	Military Supply and Transportation Evaluation Procedures
MILVANS	Military-owned demountable containers
MINIDAS	Miniature Data Acquisition System
MIPR	Military inter-departmental procurement request
MMT	Manufacturing method and technology
MRN	Meteorological Rocket Network
MTAG	Manufacturing Technology Advisory Group
MTI	Moving target indicators
MTMTS	Military Traffic Management and Terminal Service
MTOE	Modification Table of Organization and Equipment
MUCOM	U.S. Army Munitions Command
MUST	Medical Unit, Self-Contained, Transportable
MWDDEP	Mutual Weapons Development Data Exchange Program
MYP	Multiyear procurement

GLOSSARY (Continued)

NAAG	NATO Army Armaments Group
NAPALM	National Automatic Data Processing Program for AMC Logistics Management
NAS	Naval Air Station
NASA	National Aeronautics and Space Administration
NATO	North Atlantic Treaty Organization
NCO	Noncommissioned officer
NCR	National Cash Register
NHPLO	NATO HAWK Production and Logistics Organization
NICP	National inventory control point
NMC	Naval Materiel Command
NMP	National Maintenance Points
NRA	National Rifle Association
NSD	Non-self destruct
OASD	Office, Assistant Secretary of Defense
OASIS	Ownership and Accountability of Super High Value Secondary Items
OCE	Office, Chief of Engineers
OCO	Operational Capability Objectives
OCONUS	Outside continental United States
OCRD	Office, Chief of Research and Development
ODAM	Office, Director of Ammunition
ODCSLOG	Office, Deputy Chief of Staff for Logistics
ODDR&E	Office, Director of Defense Research and Engineering
OMA	Operations and maintenance, Army
OPRED	Operational Readiness Office
OSD	Office, Secretary of Defense
OTSG	Office, The Surgeon General
PACOM	Pacific Command
PCD	Program Change Decision
PCR	Program change request
PCS	Permanent change of station
PDO	Property Disposal Officer
PEMA	Procurement of equipment and missiles, Army
PEMARS	Procurement of Equipment and Missiles, Army Management and Accounting Reporting System
PEQUA	U.S. Army Production Equipment Agency
PLL	Prescribed load list
PM	Project Manager
PMB	Program Management Board
PMO	Project Manager Office
PMSO	Project manager staff offices
POL	Petroleum, oils, and lubricants

GLOSSARY (Continued)

PSYOPS	Psychological Operations
P&T	Personnel and Training
PURA	Project for Utilization and Redistribution Agency
PURM	Project for Utilization and Redistribution of Materiel
QMDO	Qualitative materiel development objective
QMR	Qualitative materiel requirement
QRICC	Quick Reaction Inventory Control Center
QRP	Quick Reacting Procurement
RAC	Research Analysis Corporation
RADA	Random Access Discrete Address
RDTE	Research, development, test, and evaluation
ROAD	Reorganization Objective Army Divisions
ROC	Republic of China
ROCA	Republic of China, Army
ROK	Republic of Korea
ROKA	Republic of Korea, Army
ROK HDRF	Republic of Korea Home Defense Reserve Force
RO/RO	Roll-on/roll-off
RPF	Reticulated polyurethane foam
RPSTL-TM	Repair Parts and Special Tools Lists-Technical Manuals
RT	Rayon tan
RTAVF	Royal Thailand Army Volunteer Force
RVN	Republic of Vietnam
RVNAF	Republic of Vietnam Air Force
SAFLOG	U.S. Army Safeguard Logistics Command
SAMC	Summary of Advanced Materiel Concepts
SAMP	Saudi Arabian Mobility Program
SAMPAM	System for Automation of Materiel Plans for Army Materiel
SA-PHLO	Special Assistant for Post Hostilities Logistic Operations
SAR	Selected Acquisition Reports
SATCOM	U.S. Army Satellite Communications
SBA	Small Business Administration
SCIL	Support Center for International Logistics
SD	Self destruct
SDP	System development plan
SEA	Southeast Asia
SEAS	Selective Effects Armament Subsystem
SECDEF	Secretary of Defense
SENLOG	Sentinel Logistics Command

GLOSSARY (Continued)

SHF	Super high frequency
SLAE	Standard Lightweight Avionics Equipment
SLAR	Side looking airborne radar
SMASH	SEA Multi-sensor Armament System for Hueycobra
SMC	U.S. Army Supply and Maintenance Command
SMO	Special Mission Operations
SPSR	Systems Performance Status Reporting
SSA	Supply Support Arrangements
SSE	System status evaluation
STRAF	U.S. Strategic Army Forces
TACOM	U.S. Army Tank-Automotive Command
TACSATCOM	Tactical Satellite Communications
TAERS	The Army Integrated Equipment Record Maintenance Management System
TAGO	The Adjutant General's Office
TASAMS	The Army Supply and Maintenance System
TB	Technical Bulletin
TCB	Tetrochlorobenzene
TD	Tables of distribution
TDP	Technical Development Plan
TDY	Temporary duty
TEAM-UP	Test Evaluation Analysis and Management Uniform Plan
TECOM	U.S. Army Test and Evaluation Command
TM	Technical manual
TOE	Table of equipment
TOW	Tube-launched, optically-tracks, wire-guided
TREND	Tropical Environmental Data
TSC	U.S. Army Terrestrial Sciences Center
TSEG	Tactical Satellite Executive Steering Group
UHF	Ultra high frequency
UIC	Unit identification codes
UK	United Kingdom
US	United States
USACSC	U.S. Army Computer Systems Command
USAF	U.S. Air Force
USAMATCOMEUR	U.S. Army Materiel Command, Europe
USAMB	U.S. Army Maintenance Board
USAR	U.S. Army
USAREUR	U.S. Army, Europe
USARPAC	U.S. Army, Pacific
USARSO	U.S. Army Forces, Southern Command
USARV	U.S. Army, Vietnam
US-HIP	U.S. Improved Hawk Missile System
USNS	United States Navy Ship
UTTAS	Utility Tactical Transport Aircraft System

GLOSSARY (Continued)

VECP	Value Engineering Change Proposal
VEP	Value Engineering Proposal
VESO	Value Engineering Services Office
VLAPA	Vietnam Laboratory Assistance Program, Army
VLf	Very low frequency
VN	Vietnam
VRfWS	Vehicle Rapid Fire Weapons System
VT	Variable time
WECOM	U.S. Army Weapons Command
WHIP	What-If-Program
WLMO	Worldwide Logistics Management Office
WWMCCS	Worldwide Military Command and Control System

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Project Managers

Advanced Aerial Weapons System 1
 Vulcan/Chaparral 1
 Container Systems 2
 Lance 1
 Main Battle Tank 1
 Mobile Electric Power 1
 SAM-D 1
 SATCOM 1
 STARCOM 1
 Utility Aircraft 1

Major Subordinate Commands

Aviation Systems Comd 2
 Electronics Comd 2
 Missile Comd 2
 Mobility Equipment Comd 2
 Munitions Comd 5
 Safeguard Logistics Comd 2
 Tank-Automotive Comd 2
 Test & Evaluation Comd 2
 Weapons Comd 2

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Other

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History 2